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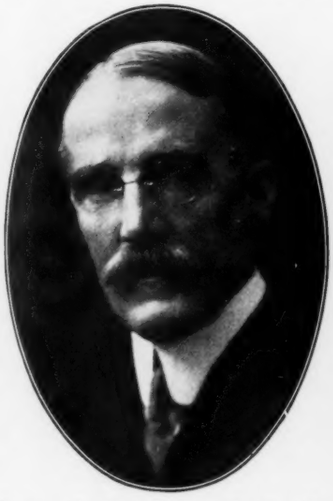
Proceedings of National Association Convention

Outstanding Features Aside From Large Attendance at Meeting and Banquet Were Resolution Emphasizing Need for Higher Cotton Cloth Tariff Rates and President Amory's Suggestion That New England Cotton Mills Capitalize Their Reputation for "New England Made" Cloths

A PECULIAR feature of textile trade conventions is that they almost invariably attract the largest attendance during periods of business depression, and the 116th meeting of the National Association of Cotton Manufacturers at the Copley-Plaza Hotel, Boston, on Wednesday and Thursday of this week, was no exception to the rule; in fact, the gathering at that convention of over 500 members and guests may be accepted as reflecting with some accuracy the extreme depression now being suffered by nearly all cotton mills. Nevertheless, there was little evidence that any but the fine goods manufacturers were visibly downhearted, the usual response to the stock query "How is business?" being, in effect, "Business is so rotten that the only possible change must be for the better." There was a variety of opinion as to when the turn for the better might be expected, varying from July to October, but there was general agreement that when it does come it must be sudden and radical because of the elimination of mill stocks and the enormous vacuum that is being created between mill and consumer.



Nathan Durfee, Senior Vice-President, National Association of Cotton Manufacturers

Convention's Outstanding Features

The outstanding features of the convention were the adoption of a resolution calling attention to the necessity for an investigation by the tariff commission of the inadequacy of the tariff rates on fine count cotton cloths and an advance in tariff rates to stem the menacing flood of importations, and President Amory's suggestion that New England cotton manufacturers adopt and capitalize by adequate publicity as the sterling mark of quality and reputation for their products — "New England Made." Both of these actions aroused great interest and there was much commendatory discussion.

Robert Amory, President, National Association of Cotton Manufacturers

Not only were several interesting innovations introduced in the program of the convention, but this was the first spring meeting of the association that was not an annual meeting. In accordance with a change in the by-laws and constitution adopted last fall, annual meetings will hereafter be held in the fall, and for this reason the present board of officers will be retained for another six months and for the longest term in the history of the organization. Incidentally it may be mentioned that this would have been the 70th annual meeting of the organization had it not been for the change noted.

John Skinner, Vice-President, National Association of Cotton Manufacturers

The notable innovations in the program involved the holding of but one session on the first day; the transfer of the banquet from the second to the first evening of the convention; the selection of key men to prepare in advance formal discussions of the technical papers; the closing of the convention with a theatre party, the musical comedy, the "Gingham Girl", at the Wilbur Theatre, being a particularly logical selection for a party of cotton manufacturers.

By delaying the opening session until Wednesday afternoon ample time was afforded a large number of

manufacturers and guests who came from distant points of New England to make the trip by automobile on the same day. The fact that a very large number of those in attendance made the return trip by automobile on Thursday afternoon was probably responsible for the comparatively small attendance at the theatre party, but it enabled mill men to attend the banquet and all of the business sessions with a loss of but two days from their work, whereas previous conventions have obliged those coming from distant points to take two days and three nights from home and business. All of the innovations were favorably commented upon and are

W. Irving Bullard, Treasurer, National Association of Cotton Manufacturers

likely to become permanent features of the spring meetings.

Value to New England

"Cotton — And the Making of Industrial New England," which was the general topic of papers and discussions at the Wednesday afternoon and Thursday morning sessions, was ably developed by Secretary Meserve, and Messrs. Alexander, Thompson and Fort. Their papers not only demonstrated that the development of cotton manufacturing has been of prime importance in the making of industrial New England, but that it has exerted a most beneficial influence in the development of the economic, political and social status of that section of the country. If the facts contained in these papers could be placed before the New England public in popular form they could hardly fail to impress them with the enormous value of the industry to the state, the community and the individual. The papers proved in a conclusive manner that most of the industrial service work for employes that is now regarded as modern was initiated by the oldest New England cotton mills, and that they were also pioneers in the development of the complete industrial community. Particularly noteworthy was the tribute that Secretary Harry C. Meserve paid to the New England cotton industry for its patriotic work in making good American citizens of thousands of immigrants who have formed so large a percentage of its operatives during the last quarter of a century.

The Opening Session

THE first session of the convention held on Wednesday afternoon got under way promptly with President Amory in the chair. It was divided into two parts, the first being a business session and the second a discussion of the general topic "Cotton — And the Making of Industrial New England."

The first order of business was the report of the secretary presented by H. C. Meserve. Mr. Meserve referred particularly to the work of the technical department and the statistical department, outlining the activities of these two important divisions. He then treated briefly several important problems confronting the industry at present such as wages North and South, maintenance of mill villages, increase in textile imports, etc. This report will be found elsewhere in this issue.

Treasurer's Report

W. Irving Ballard, treasurer of the association, in presenting his report pointed out that the organization operated at a loss last year, the excess of expenditures over receipts being approximately $5,000. As a result, the surplus which stood at $7,732 at the beginning of 1923 was reduced to $2,825 by the end of the year. He stated, however, that the board of government was cognizant of this fact and that the association is now living strictly within its budget and no longer operating at a loss. He also referred to the continued influx of new members and remarked that between 50 and 75 invited guests were present at the convention. He urged the members to make their acquaintance.

Reports of Committees

In singling out two of the committee reports to be read at this session, namely, the Exhibition Committee and the Statistical Committee, President Amory paid a tribute to the exhaustive and conscientious work done by these two groups. The report of the Exhibition Committee, read by Secretary Meserve, outlined the traveling exhibit which resulted from the display prepared by the association for the Textile Show last fall. In connection with this report the secretary presented a number of clippings showing advertisements and news comments from papers throughout the country. He also showed photographs of the exhibit as set up in various stores.

The report of the Statistical Committee was a comprehensive study of two vital questions namely: "Is the machinery available in our industry out of proportion to the population?" and "Are our stocks held by the mills excessive?" Four valuable tables were included in this report.

Owing to the lengthy program provided for the afternoon session, the reports of the other committees were ordered printed but not read. These included the Foreign Trade Committee, Membership Committee, Rates and Transportation Committee, Industrial Relations Committee, Technical Committee, Production Costs Committee, and Tariff and Taxation Committee. These reports, together with those of the exhibition committee and the statistical committee will be found in another section of this issue.

John A. Sweetser, Board of Directors, N. A. C. M., and Chairman of Wednesday's Session.

President's Address

President Amory in his annual address at this session struck the key-note of the convention when he made the suggestion that the words "New-England-Made" be coupled with the well-known brands of cotton cloth manufactured in that section of the country. It is his belief that the adoption of this suggestion would develop a demand for New England made fine cotton cloths which would render the trade of the section secure for many years to come. His entire address centered around the thought that co-operation on the part of members of the association toward developing public appreciation and support of the New England cotton industry was the outstanding need of the day. Mr. Amory's address will be found in the address section of this issue.

Industrial New England

The second part of the session, devoted to the topic "Cotton — and

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Charles H. Clark Vernon E. Carroll
Clarence Hutton Douglas G. Woolf

EDITORIAL

We Believe
in the Conservation and Protection
of Domestic Industries

"New England Made"

IF the cotton manufacturers' convention in Boston this week had produced nothing more than President Robert Amory's clarion call to New England manufacturers to capitalize their century-old reputation with the hall-mark or slogan "New England Made" it would have been worth all the time, effort and expense involved. It will rank as the most important meeting in the history of the organization if the call is answered and the manufacturers of New England's leading industries—textile, shoe, hardware, jewelry, etc.—co-operate in the financing of the campaign of publicity that will be necessary to "put over" this big idea.

President Amory's suggestion was confined to the New England cotton textile industry because this was a cotton manufacturers' convention and its chief topic was "Cotton and the Making of Industrial New England." In papers and discussions the development of cotton manufacturing in that section of the country was traced from its founding in 1790 and from its development on a factory scale in 1810. It was agreed that it has been and remains New England's greatest industrial asset; that into this industry has gone the best of New England manufacturing, merchandising and financing ability, and that in skill and quality of workmanship and integrity of dealing it has no peer anywhere in the world.

It was admitted, however, that even the New England public has accepted this remarkable development as a matter of course, and that few of that public really know their home industry or appreciate its value to them; further, that outside of New England all but a very few of its individually identified and advertised products are unknown. In other words, here is a section of the country whose cotton industry has an age and skill equal to that of the oldest in the world, yet has failed to capitalize these assets and build a lasting reputation.

Unfortunately President Amory did not explain why New England's reputation for cotton textile prestige remains so largely latent. However, we know that the capitalization of a community slogan such as he has suggested is a co-operative problem, and we can recall no recent outstanding example of New England industrial co-operation; in fact, we find it necessary to go back to tea-party times to find a case of effective textile co-operation in New England, and even then it was the "Sons of Liberty" and not a textile organization, which encouraged spinning wheel competitions on Boston Common as a part of its effort to boycott English products and stimulate domestic production.

Does this mean that more than a century of keen business competition has developed so many hereditary jealousies and animosities that whole-hearted co-operation has been rendered impossible to New England cotton manufacturers and merchants?; or is it prohibited by temperamental incapacity of the descendants of early captains of New England's industry? If the answer to either query is affirmative, it is perhaps fortunate that so small a portion of New England's textile industry is now controlled by its founders' descendants. The clarion call sounded by President Amory can be answered effectively only by those who are alive to modern methods of merchandising and publicity, and for the sake of the future of New England and of the whole cotton industry it is to be hoped that the number who hear and respond to the call will be sufficient adequately to capitalize this latent cotton textile reputation, thus ensuring its permanency and educating consumers to regard "New-England-Made" cottons as the peer of "Imported" cottons.

* * *

Constructive Labor Union Efforts

IN marked contrast to the recent pronunciamento of Thomas F. MacMahon, president of the United Textile Workers of America, in which he warned textile manufacturers that wage reductions would be resisted and intimated that a concerted wage reduction was being engineered, is the constuctive effort of the New Bedford Textile Council to eliminate one of the chief causes of unemployment in the fine goods mills of that city and other parts of New England. Being convinced after careful study of existing business conditions that the principal cause of poor business in their branch of the industry is the enormous increase in cotton goods imports the executive committee of the council has petitioned President Calvin Coolidge to exercise the flexible provisions of the tariff act and advance tariff rates on fine count goods if the investigation by the tariff commission proves this to be warranted. The emergency committee of the American Federation of Textile Operatives will also be asked to endorse this action and present a similar petition to President Coolidge.

The emergency committee of the New Bedford Textile Council also deprecates the unwarranted and silly preference shown by so many people of this country for imported textiles, particularly fine count cotton goods, and proposes a campaign of education designed to demonstrate the superiority of American fabrics and to encourage their use in preference to the products of foreign labor. These union officials are acting independently of manufacturers in both of these movements, but it is hardly necessary to state that this is constructive endeavor that is of equal benefit to labor, manufacturer and the textile community and should win the hearty co-operation of all concerned. It is also hardly necessary to observe that if such co-operation were more frequent the interdependence of labor and capital would be better understood and a more cordial feeling thus engendered would render misunderstandings less frequent and the adjustment of differences easier.

Secretary W. E. G. Batty, of the New Bedford Textile Council, regards it as "blind folly to raise the bogey of a wage cut at this time when there is no intimation from official quarters of the manufacturers that any such thing is contemplated;—such an irresponsible statement as that of the U. T. W. officials works real harm to the mill operatives and no possible good can come of it." Condemnation by union labor of the unwarranted acts of its radical element is scarcely less refreshing and encouraging to manufacturers than the constructive efforts of such a progressive body of union labor as the New Bedford Textile Council.

* * *

Are Women Ladies?

WITH apologies to the popular novelist who wrote "Are Women People" we present the question: "Are Women Ladies?" Not that we expect an answer—but it's easier than it sounds.

From time immemorial the hosiery business has not bothered itself with this problem. Playing it safe, all the fair sex have been sweepingly classed as gentlefolk and all hosiery for women has been "ladies' hosiery." We do not suggest for a minute that this is incorrect, or that a line of demarcation should be established which would result in: "This, madam, is the ladies' hosiery department—you will find women's hosiery two aisles over."

With successful maturity in individual or corporate existence, however, there usually comes a degree of dignity. This dignity, variously expressed, may not add one whit to the essentials of life or business, but it usually manages to express an established soundness and a nice regard for accuracy even in details.

Cannot an industry possess dignity? Certainly, shouts a chorus of manufacturers. Would this not be an excellent time to start talking about "women's hosiery," instead of "ladies' hosiery." We refuse to answer.

Are women ladies?

* * *

The McNary-Haughen Monstrosity

AS it is not possible to conceive of President Coolidge's affixing his signature to such an economic monstrosity as the McNary-Haughen Agricultural Relief Bill, and as all recent and present acts of Congress are political, there would appear to be strong circumstantial evidence that this bill is not a sincere effort on the part of its proponents to relieve the farmers permanently, but merely represents another camouflaged effort of Democrats and radicals to relieve themselves permanently from the Coolidge menace to their political future.

This economic monstrosity is class legisla-

tion of the most flagrant type; it forces the government into business so deeply that it can never be extricated, and also legalizes government price-fixing; it would delegate a portion of Federal taxing power to a corporation, and commits the further unconstitutional blunder of attempting to control commercial conditions and rights within a State; it also attacks the Constitution by initiating tariff legislation in the Senate instead of in the House of Representatives; it aims a death-blow at co-operative selling of farm products and substitutes therefor a government-controlled corporation whose machinery is so complicated as to make the co-operative system look like the simplest agricultural tool.

This economic monstrosity makes no effort to eliminate the cause of agricultural distress, but seeks by artificial and dangerous methods to perpetuate these causes, to validate existing liabilities and arbitrarily to set up ancient price ratios. Not only are we confident that President Coolidge will not sign such a monstrosity but that he will be able to capitalize this unsound piece of legislation to his political advantage.

Cyclone in South

Three Deaths and Much Property Damage at Anderson, S. C.

ANDERSON, S. C. Apr. 30.—The mill and village of the Riverside Mfg. Co. were seriously damaged by cyclone about 8 o'clock this morning. Approximately one-half of the third story of the mill was completely destroyed, the walls being blown out and the roof collapsing on the machinery. Damage to Toxaway Mills, which adjoin the Riverside plant was much less serious, consisting of a hole blown in the wall of the second and third floors of one end of the mill and damage to the roof near the center of mill. The entire mill of the Riverside Mfg. Co. and all of its machinery was deluged with water from the torrential rain falling during and after the cyclone.

Approximately 50 houses in the villages of Riverside and Toxaway mills were leveled or injured so badly they will have to be pulled down. In the mill villages there were three deaths, the wife of an employe and her two sons being killed when the house in which they lived collapsed. As nearly as could be determined this morning, approximately 30 employes of the mills were injured.

Both mills were operating when the storm occurred. There were about 250 employes in the mill of the Riverside Mfg. Co. this morning of whom 15 were at work in the twist room over which the roof collapsed.

All employes in the room escaped injury except one man who had a leg broken when roof timbers fell on him in an aisle. Most of the roof timbers and the tar and gravel roof were caught and held about 3 feet above the floor by the twister frames, speeders, slubbers, and intermediates in the room and this prevented employes from being crushed between the roof and the floor. The room over which the roof collapsed is about 100 feet wide and 200 feet long.

The wind also took the roofing off the picker room of the Riverside mill, but left the roof decking and timbers in place. The square brick smokestack of the old boiler house was cracked and thrown out of plumb by the pressure of the wind, but did not fall. A small warehouse containing cotton was completely demolished. The cottages of employes which were in the direct path of the cyclone were literally torn to pieces and others out of the direct path collapsed, were unroofed or otherwise damaged.

The first thought of officers of the mill was for the relief of their employes who suffered from the storm. Injured employes from the villages were rushed to the local hospital as soon as they were removed from the ruins of their houses. Officers of the mills took the lead in organizing this rescue work following which they turned their attention to finding homes for homeless but uninjured employes. Vacant houses in the Toxaway mill village were used for employes of the Riverside mills who lost their homes.

B. B. Gossett, president and treasurer of Riverside Mfg. Co., authorized the following statement this morning: "All of our attention has been given to our employes who suffered in the storm and we have not yet attempted to estimate the property loss of the Riverside Mfg. Co. We shall repair damages to the mill and village immediately after settlement with insurance companies. The property loss of the Riverside Mfg. Co. was covered by insurance."

Jas. P. Gossett, president and treasurer of Toxaway Mills and vice president of Riverside Mfg. Co., said that the damage to Toxaway Mills would be repaired immediately after adjustment was made with the insurance company.

S. H. Lander, J. A. Farmer and Supt. J. T. Crawford, of these mills were all active in relief work. Mr. Lander said this morning that it was little short of a miracle that only one man was injured in the collapse of the twister room in the Riverside mill. This injured man was removed from the room by a party headed by Supt. Crawford. The storm tore down the power wires outside of the mills and this is responsible for the fact that there was no outbreak of fire in the mills following the wind.

Reports from Atlanta indicate that damage in the vicinity as a result of the tornado amounted to about $200,000. The plants of the Lawrenceville, Ga., mills were partly razed and considerable stock destroyed.

Speakers Engaged

The entertainment committee of the Philadelphia Textile Manufacturers' Association announce they have secured two speakers in addition to Captain Irving O'Hay, for their ninth semi-annual meeting and dinner to be held at the Manufacturers' Club in Philadelphia, on Thursday, May 15 at 6:30 P. M. John Fisler, president of the Manufacturers' Club, will present facts relating to the future of the textile industry and Thomas Parkinson, Dean of the Law School, Columbia University and a vice-president of the Equitable Life Assurance Society of New York, will address the meeting, which is expected to be the largest held by this association.

TEXTILE CALENDAR

Southern Wholesale Dry Goods Association, Annual Meeting, Charlotte, N. C., May 6–10, 1924.

Southern Textile Social Service Association, Annual Meeting, Columbia, S. C., May 7–9, 1924.

American Society of Mechanical Engineers Metropolitan Section, Textile Meeting, Rockland Finishing Co., Garnerville, N. Y., May 8, 1924.

Cotton Manufacturers Association of Georgia, Annual Meeting, East Lake Country Club, Atlanta, Ga., May 13, 1924.

National Association of Worsted and Woolen Spinners, Annual Meeting, New York City, May 14, 1924.

Philadelphia Textile Manufacturers Association, Semi-Annual Meeting, Manufacturers Club, Philadelphia, May 15, 1924.

National Association of Woolen and Worsted Overseers, Semi-Annual Meeting, Rocky Point, R. I., May 17, 1924.

International Association of Garment Manufacturers, Annual Convention, Hotel LaSalle, Chicago, May 20–22, 1924.

Associated Knit Underwear Manufacturers of America, Annual Meeting at Atlantic City, N. J., May 22–23, 1924.

Lowell Textile School Alumni Association, 25th Annual Reunion, Lowell, Mass., May 24, 1924.

American Cotton Manufacturers' Association, Annual Convention, Hotel Traymore, Atlantic City, N. J., May 27–28, 1924.

Philadelphia Textile School Alumni Association, Annual Meeting June 5 and Annual Banquet June 6, 1924.

Southern Textile Association, Spring Meeting, Blowing Rock, N. C., June 13–14, 1924.

Cotton Manufacturers' Association of North Carolina, Annual Meeting, and Joint Meeting with Cotton Manufacturers Association of South Carolina, Blowing Rock, N. C., June 27–28, 1924.

Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 20–25, 1924.

Endorse "Rayon"

Retailers' Committee Recommends Its Adoption

Acceptance by the retail trade of "rayon" as the generic name for artificial silk is indicated by the decision of the artificial silk committee of the National Retail Dry Goods Association to recommend approval of the new name to the association's board of directors.

The committee, under the chairmanship of E. C. Blum, Abraham & Straus, Inc. Brooklyn, met last week at the headquarters of the association to take action on the report of the special committee of the artificial silk interests which suggested the word "rayon" to replace the terms "artificial silk" and "glos."

After hearing the report of S. A. Salvage, of the Viscose Co., chairman of the producers committee, which indicated that there would be wide support for the new name from the manufacturing trades, the artificial silk committee of the National Retail Dry Goods Association accepted the recommendation that "artificial silk" and "glos" be dropped and "rayon" be used in the future by all manufacturers, jobbers and retailers of the material.

The artificial silk committee also decided to recommend to the board of directors of the association that, if it sees fit to give its official approval to "rayon," immediate steps be taken to secure the cooperation of all retailers and interested trade associations in popularizing the new name.

Melton Sale in Boston

WASHINGTON, D. C.—The 1,474,000 yards of O.D. 20-ounce melton and the similar large quantity of gray and O.D. duck, which were originally to have been offered at public auction at the Brooklyn Army Base on May 2, will be offered at Boston on May 22, except for about 605,000 yards of the duck will be placed under the hammer at the auction sale to be conducted in Philadelphia, May 13, according to the Sales Promotion Section, War Dept.

Fertilizer Sales

CHARLOTTE, N. C., April 29.—According to local fertilizer distributors, there has been a slight increase in amount of fertilizer sold this year over last year. Demand was slow in getting started, due to the late spring, but shipments have been heavy and continuous since early March.

The Commission House Up-to-Date

Interesting Details of Highly Efficient Methods of Handling a Cotton Goods Commission Business Used by One Progressive House—"One Glance" Accounting System, Employing Automatic Machines, Shows Quickly and Accurately Exact Status of Any Department—Ingenious Preparation of Samples

By *Louis R. Keeffe*

ACCUSATIONS of lack of progressiveness are often levelled against the dry goods trade, not always, it must be admitted, without some measure of truth. Cotton goods commission houses have not been noted, as a class, for their ready adoption of modern ideas in office layout, office equipment and the conduct of the detail end of their business.

In recent years, however, marked progress in the right direction has been made by many commission houses in the downtown New York district. The change in appearance of the cotton goods "store," and its methods of handling detail, are nothing less than startling in comparison with those in effect so short a time ago as the days before the war.

Conservatives in the trade are not by any means completely won over to the new spirit of things, and their attitude is often one of distrustful doubt, if not outright condemnation. They frequently "view with alarm" the tendency to abandon the ways and means which were "good enough in the good old days, and good enough today."

This tendency is none the less making rapid progress, and there are a number of outstanding examples of it within a stone's throw of Worth Street. It is the purpose of this article to outline briefly the up-to-date office routine and method of handling detail in a cotton goods commission house which is thoroughly representative of the new idea—Harding, Tilton & Co., 320 Broadway, New York.

It is hoped that this description will prove of interest not only to commission merchants but to mills themselves, which may be able to apply some of the methods described in their own offices.

A Modern Office

Undoubtedly the most impressive thing about the Harding-Tilton office is the striking difference between it and the old-time dry goods "store." There is no display of sample pieces on long rows of tables, not infrequently a disorderly display in the good old days and anything but pleasing to the eye. Not a single sample piece is in evidence. In quality of office furniture and arrangement this "store" is not a store, but a modern office which at first glance might be the office of a successful steel business, or lumber business or financial business.

The answer is found in specially designed cabinets, which accompany every salesman's desk, in the drawers of which are neatly arranged a complete set of samples of all goods made by the mills represented. Each cabinet contains eight drawers, four on a side, the two upper ones on each side being devoted to miniature head-ends and the four lower ones to larger samples. In the upper drawers the samples are arranged in specially-made folders, three samples to the folder, each folder having an index guide on the upper right hand corner which shows at a glance the construction of the goods it contains.

"Mahogany desks, imagine it!" exploded a cotton goods commission man in recent conversation with the writer of this article. The subject was the much-discussed financial status of a large commission house, (not the one referred to in the accompanying article), which had committed the unpardonable sin, among other evidences of progressive merchandising policies, of re-equipping its "store" with modern office furniture and installing modern office methods.

It was too much for our friend. "Mahogany desks!" he shouted, with a derisive snort and a contemptuous wave of the hand, which at once placed the blame for all possible business misfortunes on the innocent new desks, and dismissed the subject.

Happily, this attitude is on the wane. It is no longer considered necessary to the conduct of a dry goods commission business that all outward semblance of office efficiency be sternly repressed. The dry good "store" is by way of becoming, what it should be in the primary market, a modern office. Most cotton goods commission houses no longer remind the casual observer of Civil War days.

As a symbol of progress, and not of extravagance, more power to the mahogany desk!

Here is a radical departure from ordinary methods. As in other departments of the business most of the equipment used is specially designed and not inexpensive, but Leavelle McCampbell, who has directly supervised all of the system employed, and has originated most of it, is sponsor for the statement that this added expense is more than compensated for by the saving in office space and the advantages resulting from the fact that samples of all goods handled are instantly accessible.

"One Glance" Accounting

Following an order through the routine employed in this office, the emphasis laid on accurate, quick handling of all detail becomes more impressive with each successive step. What first appears as unnecessary multiplication of details is quickly revealed as actual simplification of routine bookkeeping. The method of accounting employed results in an extremely interesting example of a business so ordered that the exact status of every department, every mill and every salesman can be ascertained at a glance.

This method of accounting employs three machines, manufactured by the Powers Accounting Machine Corp., which automatically perform many operations usually accomplished by tedious hand labor. These machines are used as a unit, and consist of a punching machine, a classifying machine and a tabulating machine.

The best way to describe the operation of these machines is to follow a theoretical order through the office. After being O K'd by the man in charge of the mill for which the particular order has been taken and by the credit department, it is entered in a delivery book. (This delivery book, which is really not a book at all, but an ingenious card file system, will be described later.)

The Punching Machine

The order then goes to the first unit of the accounting machine system, the punching machine. A card is punched for every order, as illustrated in Fig. 1. Similar cards are punched for invoices, credits and cancellations, the four cards being readily distinguished by differences in color. The order card is punched to show: Date, order number, terms, salesman, mill, construction of cloth, grade (first, seconds, short pieces), yardage, pounds and value.

The order then goes to the typeing department, in which the Underwood fanfold system is used, making six copies at a time. This machine makes possible the use of a continuous stream of order blanks; the

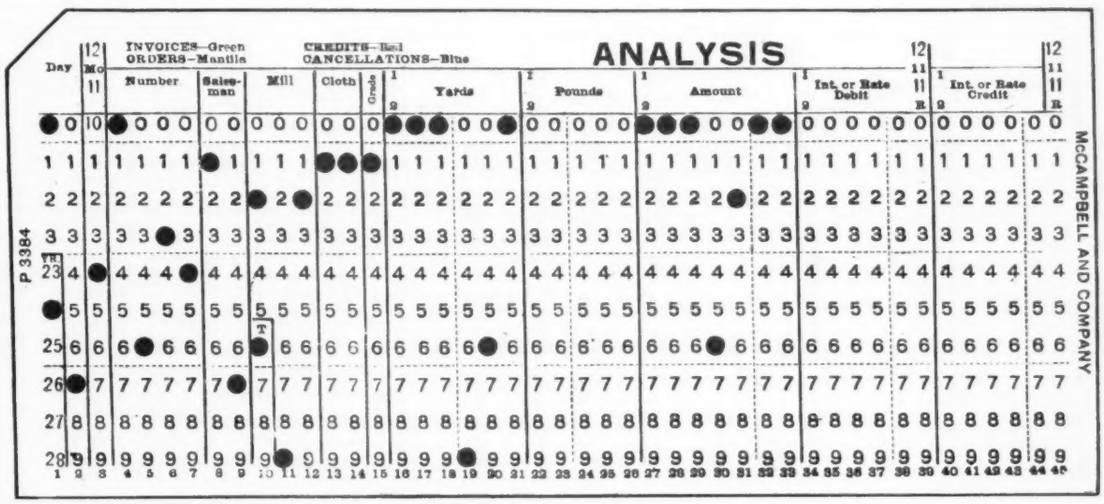

Fig. 1. Punched card used in "automatic accounting system" of McCampbell Dept., Harding, Tilton & Co. The figures are coded. Cards of this type are made out for invoices, orders, credits and cancellations. They are classified and tabulated, as desired, on automatic machines.

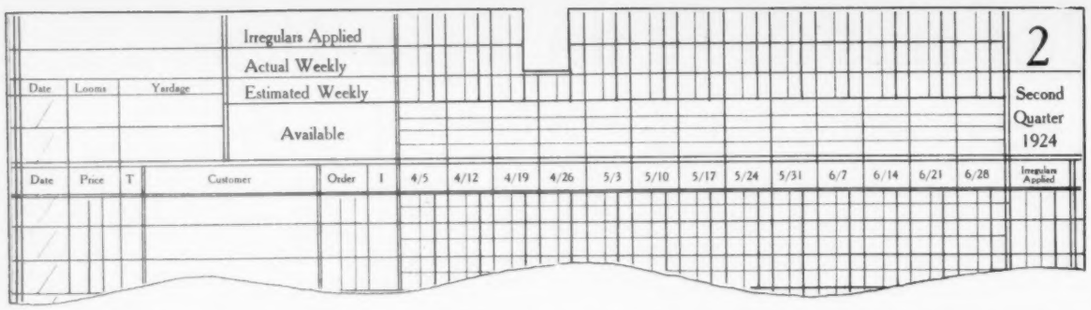

Fig 2. Card used in "delivery book," which shows at a glance exact status of all orders over a thirteen week period. A card is made out for each construction made at all mills.

transfer of carbon paper is automatic, and individual orders, when typed, are removed from the machine by the simple process of tearing along a perforated line.

Six copies of each order are made; one for the office, two for the mill, two for the customer (confirmation and acceptance) and one mill acknowledgment. The order, as typed, is checked by the detail department head, and is sent to the mill.

Invoices go first to the delivery book, where shipments made are deducted, and then are sent to the typeing department. On the punching machine a card is punched for each invoice, giving the same data appearing on the order cards, with the additional item of interest, either debit or credit. In the Harding, Tilton office the clearance date of all invoices is figured as of the 10th of the month following shipment.

Quick Classified Totals

Accounting with the mill is done from the invoice cards. With the machines used these cards allow of a rapid and accurate separation of cards, according to desired classification, and tabulation of classified totals. One of the holes punched on each card, in each column, is a key hole for which the classifying machine previously mentioned may be set. Punched cards in any number are placed in the classifying machine, the machine set, and a turned switch starts the cards through the classifying process at the rate of approximately 18,000 cards an hour.

This machine shoots the cards with great rapidity into separate compartments, according to the classifications desired. By this system it is possible to sort the cards into desired classifications: business done in a certain territory, goods sold or billed during the month, the individual standing of each salesman, percentage of seconds and shorts, etc.

The tabulating machine which is the third unit of the system receives these classified cards, quickly runs them through its mechanism, and arrives at the total for each classification. It requires no great stretch of the imagination to visualize the possibilities of this system, which makes almost instantly available accurate information as to the detailed standing of any part of the business, with practically no chance of error.

The account sales sheet, which goes to the mill each day, shows the results of automatic tabulation of these punched cards. These sheets show invoices received, date, number, terms, construction, grades, yards and pounds, net amount of invoice after deduction of discount and interest debit or credit to the clearance date. The balance is carried forward each day, and the sales sheet is an accurate day-to-day record of the account of the mill with the commission house.

Automatic Interest Computation

Another ingenious machine used is the Mercedes-Euklid, made in Germany, which automatically calculates interest. This machine, also electrically driven, is possessed of almost superhuman speed, and its operation is simplicity itself. It is about the same size as the ordinary office typewriter. A simple setting of principal, interest rate, etc., by means of small knobs (the figures being visible), a flick of the wrist against a small lever starts the machine in automatic operation, and it quickly shows the result on a dial.

In the mailing department of the office an addressograph machine is used. The name plates used in this machine are classified by tabs, and the machine is set to select automatically any classification desired. The desirability of this is apparent; customers or prospects, or different classes of each, or those who have bought certain goods or those who have not, are picked out by this machine, according to the piece of mail matter going out. Twenty-three classifications of the mailing lists are in use in this office.

Outgoing letters are automatically folded on a Universal Folding Machine, and a Standard envelope folder takes care of the sealing of envelopes.

Each week a delivery schedule goes to each salesman in the organization, this schedule covering a period of 13 weeks and showing price, terms and delivery available each week on all goods handled by the house. A weekly list of seconds and shorts is also sent to every salesman, and to the trade.

The Modern Delivery "Book"

The delivery book used in this office, which has been mentioned briefly, deserves more space than can be given to it in this article. As stated, it is not a book at all, but a card index between two covers, which shows at a glance the exact status of every construction made. A sample of the cards used is shown in Fig. 2. These cards, covering a quarter-year, show what is sold for each week (in the lower half of the square) and what is still to be sold

(*Continued on page 202*)

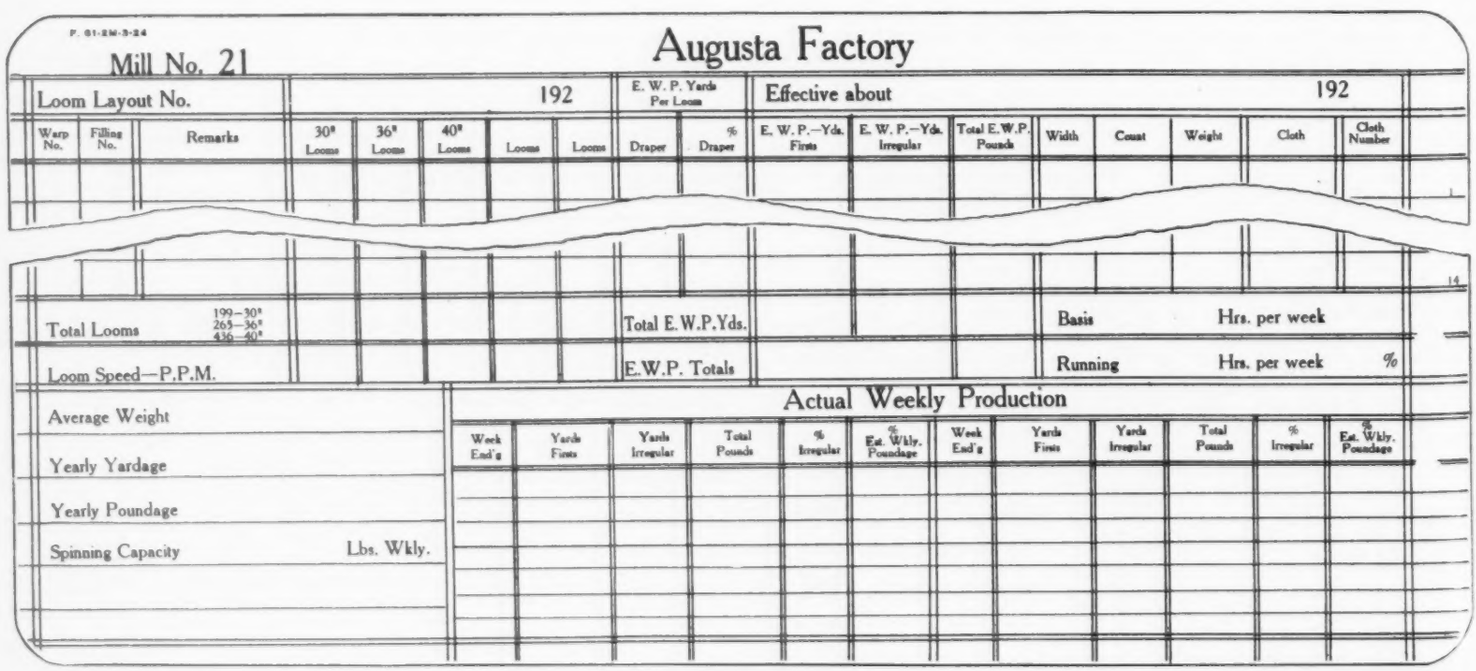

Fig. 3. Loom layout sheet. On reverse side is printed diagram of each weave room, every loom having a number and every section a letter.

Report on Cotton Trade

Trade Commission Suggests Numerous Changes

WASHINGTON, D. C.—The Federal Trade Commission's report to the Senate on the cotton trade has come so late in the session that it is doubted whether legislative action will result unless, instead of adjourning, Congress recesses during the month of June and returns to work after the political conventions. This is unlikely as the members of both houses of Congress will commence soon thereafter on election campaigns.

Numerous changes designed to improve conditions in the cotton trade are recommended in the report which was submitted to the Senate last Monday in pursuance to resolutions passed at the last session. Amendment of the Cotton Futures Act is advised to provide for delivery on all future contracts of three contiguous or adjacent grades. This recommendation rests on the condition that the recommendation providing for delivery on New York future contracts at southern ports also is adopted. The Commission's report also suggests revision of the system of making spot quotations and differences to insure more accuracy, and urges that Congress should compel publication of the total volume of future trade and of open future trades.

The Commission recommends that consideration be given to a reduction in the size of the contract delivery, now 100 bales, remarking that the value of the present contract with cotton at 20 to 30c. seems entirely out of proportion to the value of the deliveries on future contracts for wheat, corn and oats. A reduction in the size of the delivery would render the contract more merchantable, in the Commission's opinion, and at the same time would permit closer hedging. Delivery approximating minimum carload requirements is suggested.

Enactment of a prohibitive tax on cotton puts and calls like that now in force for grain puts and calls is recommended, the Commission believing that this would contribute to the elimination of such trading which is now prohibited by the rules of both of the cotton exchanges.

Canada's Woolen Profits

A fair profit was made by the woolen textile industry of Canada in the year 1922, according to a bulletin just published by the Dominion Bureau of Statistics. In that year the total cost of production, including the cost of materials, was $25,330,-812, while the value of the products of the industry is placed at $29,062,-751, leaving a favorable balance of over $3,700,000. Even if the interest on the total investment of $37,102,382 is figured at 5 per cent, there is still a considerable balance. The value added to their products by manufacture is placed at $15,202,772.

Testimony Favors Rogers Bill

Hearing Has Brought Out Overwhelming Sentiment Against French Bill—Blanket Men Heard

WASHINGTON, D. C.

COMPULSORY identification of a product by the manufacturer is being considered by the Interstate and Foreign Commerce Committee of the House. The committee is inclined to believe that if a manufacturer is required to put his name on his merchandise he will maintain its quality and that, in practice, legislation merely requiring identification will accomplish more good than a truth-in-fabric law requiring that the contents of wool woven cloth shall be stated on the label, or a voluntary branding law under which the manufacturer may label his product or not as he pleases provided he tells the truth in making any representation.

The committee has heard the truth-in-fabric bill and the branding bill explained by their authors, Representatives French and Rogers, and in addition has heard extended testimony by representatives of the textile and other industries on the two bills. Such testimony has been overwhelmingly in favor of the Rogers bill. The French bill has been repudiated by witnesses and practically rejected by the committee. The Rogers bill has in it much to commend it, and the trade generally has indicated acceptance of its provisions but the committee is forced to consider the probability that it would be practically as difficult to enforce as the French bill.

No consideration has been given publicly to difficulties that may be met in enforcing a merchandise identification law. Actually the committee has hit upon the proposal as a likely scheme and has not yet worked it out in detail. W. N. Given, vice president of the Pearce Mfg. Co., Latrobe, Pa., went on the stand Saturday representing the American Association of Wool Blanket Manufacturers. After reading his prepared statement to the committee, Mr. Given was asked by Chairman Winslow whether he would subscribe to the proposition that every article made in this country should bear the maker's name. Mr. Given replied that the Pearce Mfg. Co. would have no objection but he said that he could not speak for the industry as a whole.

Chairman Winslow asked Mr. Given to be sure of his answer because the committee was not going to forget it. Questioned further along the same line Mr. Given said that in his opinion a manufacturer will not turn out inferior merchandise bearing his name. He invited the committee's attention, however, to the fact that most goods must be made to meet a price. R. P. Hazzard, of the R. P. Hazzard Co., Gardiner, Me., at the hearing on the preceding day had agreed to the committee's suggestion, stating that the "protection of the public is in the branding by the man who stands back of the shoe."

Mr. Given's Statement

Mr. Given's statement follows in part:

"The use of reworked fibres obtained from rags or clippings is negligible in the manufacture of bed blankets. The use of garnetted stock, however, is common. Under the French Bill, these garnetts are classed as reworked wool in spite of the fact that they are stocks reclaimed from threads which have never been in service, and which in many cases have never left the mill.

"A blanket of, let us say, 50% virgin wool of a good grade, combined with the same amount of garnetted stock of equal or better quality, may be manufactured at a given cost—a blanket which is in every way serviceable, warm, and which represents as nearly as it is possible to manufacture the best quality of merchandise at that given price.

"On the other hand, a blanket of 100% low grade *virgin* wool, foreign or domestic, can be produced at a much less cost, but the resulting product gives neither the service, warmth, or comfort represented by the blanket marked 50% reworked stock.

"If the blanket manufacturer could substitute *virgin* wool *of the same quality* for the *reworked* wool now used, and if the resultant rise in price were reflected in the service, warmth, and comfort of the product, no reworked stock would be used. But such is not the case. The increase in value, due to such a substitution is not at all in proportion to the increased cost of manufacture. Let me illustrate. Using as an example the blanket mentioned above made of 50% virgin wool and 50% garnetts, if virgin wool were substituted for these garnetts, the raw material would cost the manufacturer approximately one-sixth more. This additional manufacturing cost would of necessity be reflected in the selling price.

"Another point—the garnetts made from left-over threads, blankets mechanically damaged in manufacture, and similar sources, are now reclaimed and returned to the process. Deterred from such a policy of conservation by a law which would necessitate the labeling of the resultant product as containing a certain percentage of reworked wool, this perfectly good stock of identical quality to that contained in the blanket itself becomes *waste*, and the additional virgin wool which must be substituted to take its place becomes an additional charge to the final purchaser."

Irving Crane Heard

The men's clothing manufacturers themselves have no objection to placing their name in garments, Irving Crane, secretary of the Associated Clothing Manufacturers of New York, told the Committee on Tuesday. The names of many manufacturers are household words because they are proud of their products, have advertised them and put their name on them, said Mr. Crane, but he insisted that compulsory indentification would upset the fundamentals upon which the present system of merchandising rests. The same label would appear on all grades of goods made by one manufacturer and the label would be useless to the consumer as a quality mark, said Mr. Crane.

The retailer actually would suffer from compulsory manufacturer's identification, in Mr. Crane's opinion. He is successful by reason of his knowledge of the market—where to buy and what to buy. A label on the garment would disclose to his competitor the source of manufacture and the first retailer would be deprived of a competitive advantage gained by business acumen, said Mr. Crane. Clothing that is labeled now by the manufacturer is nationally advertised, the retail sale of which in a given territory is confined to one or a very few dealers.

Mr. Crane estimated that there are 25 nationally advertised lines of men's clothing and 2,700 clothing manufacturers while the value of the advertised output is $300,000,000 out of a total production value of one billion dollars per annum. The manufacturers making the clothing valued at $700,000,000 sell to anyone who will buy at their price. This clothing is not branded. It meets in a competitive market and the retailer's success in selling it to the public depends on his salesmanship, remarked Chairman Winslow. Mr. Crane agreed. Then the danger of enforcing a bill requiring the manufacturer to brand his goods is that retailers' salesmanship would degenerate to peddling, said Chairman Winslow. Under present conditions two retailers may sell garments made by the same manufacturer but their identity is not known to the public and the consumer will deal with the retailer who seems to offer the most for the money. Suppose the clothing is branded "Manufactured by Jones, Chicago," continued Chairman Winslow. Then the customer, knowing that the goods handled by both retailers is the same, would deal with the one making the lower price and cut-throat competition would ensue, resulting probably in the elimination of either one of the retailers. Then the surviving retailer, again would be in a position to ask his own price and the purchaser would lose in the end.

The consumer is absolutely protected now, said Mr. Crane. In the past 15 years there has not been one man in 100,000 who, dissatisfied with his purchase, did not get an adjustment. Very often it is merely to please the whim of the purchaser that a refund or replacement is made, but it costs the manufacturers thousands of dollars annually, according to Mr. Crane. Mr. Crane read telegrams received from clothing manufacturers in Rochester, Baltimore and Philadel-

phia opposing enactment of the French-Capper bill and endorsing the Lodge-Rogers bill. Questioned by Representative Shallenberger, Mr. Crane said he could not predict whether more clothing would be branded under the Lodge bill than is branded at present. He said that he did not know of any clothing being misbranded now.

Cut, style and tailoring are more important to the consumer than the constituents of the cloth, the Committee was told on Tuesday and Wednesday by Arthur J. Todd, of B. Kuppenheimer & Company, representing Chicago clothing manufacturers; Carey E. Quinn, Washington representative of the International Association of Garment Manufacturers; and E. L. Steinhardt, assistant general manager of the Cloak, Suit and Skirt Manufacturers Protective Association of New York, and also representing the Merchant Ladies' Garment Association, jobbers of women's wear.

When Mr. Quinn went on the stand he was met by a suggestion from Representative Huddleston that the consumer is forced to buy on appearance because he is not given any information and is not competent to form judgment on the durability of a garment. Conceding that the purchaser's decision may rest on superficial factors he said that the customer likes to get his money's worth and he asked Mr. Quinn whether some scheme cannot be worked out by which some data regarding tensile strength, resistance to wear, etc., could not be given that would be understood by the consumer. Representative Huddleston admitted that the mere fact that the cloth is made of shoddy or virgin wool may mean nothing. The consumer still thinks that virgin wool means durability and in order to relieve him of that impression what facts can be given him that are indicative of durability, Mr. Quinn was asked.

Definite standards should be set up for cloth, replied Mr. Quinn. He expressed the opinion that some sort of branding method could be worked out but it would require several years.

Representative Burtness suggested that under the voluntary branding law the public will learn to look for a brand and have more confidence in a brand if it is known that misbranding is punishable. Mr. Steinhardt said that the effect of the voluntary branding law would be to compel every manufacturer to label, because the public would insist on it. Messrs. Todd and Quinn had stated that, in their opinion, there would be less branding under a voluntary law.

Lew Hahn, representing the Retailers National Council and National Retail Dry Goods Association testified Thursday that the principle of Rogers bill is endorsed by retailers, but in practice it would be unfair to honest merchants while failing to remedy the dishonest practices of others. There is sufficient law now on Federal and State statute books to cover misbranding, he said.

Carpets Open For Fall

Retail Trade May be Cautious but Support is Expected

The fall, 1924, carpet season made a good start on Thursday May 1 when several prominent producers named prices and the season will be in full swing next week with the rest of the trade making their offerings on Monday. The uniformity of this opening as to time is a matter of self-congratulation among buyers who have been urging May and November openings for some time.

The work of the last two months in retail circles has paved the way for the fall opening by a fairly thorough liquidation of stocks. The fact that the Alexander Smith & Sons Carpet Co. did not hold another auction at this time is taken as evidence that stocks have not been accumulated on the mill end. The auction in March resulted in satisfactory absorption of the carpets and rugs then on hand and gave distributors the keynote for the prices named at the outset of the new season.

There are large numbers of buyers in New York for the opening, but owing to the absence of the auction, it is doubtful whether the numbers will come up to the figures usual on such an occasion. Buyers who have made the trip in person to attend the sale may cover the opening this season through their resident representatives. The market is not necessarily the loser in this case as business which is in readiness will be placed though the season may develop with some of the caution which has been observed recently in other textile lines.

It is understood that the retail trade in the East is better placed to go forward with the new season than the Middle Westerners who still are said to have supplies on hand which relieve them of the buying pressure usual at this time of year. The initial business will doubtless carry mills for six weeks or more and by that time it is expected that the Middle Western trade will be more anxious to operate.

In a general way the tendency of the last few months is carried out by the new fall prices. Pressure for popular priced rugs has supported the cheaper grades and tended to soften prices on the higher grades by the relaxing of demand for them.

Manufacturers are watching the carpet wool market but for the most part remaining aloof from it. From abroad come reports of a slight easing in carpet wools but the American trade must find a considerably lower wool basis if they are to get out carpets for less money. Cotton yarns have not responded proportionately to the rise in cotton and they are consequently regarded as on an uneconomically low basis which may change at any time.

Among the concerns opening on Thursday were the Alexander Smith & Sons Carpet Co., Artloom Rug Mills, Beattie Mfg Co., Hightstown Rug Co., and Chas. P. Cochrane Co.

Those which are to open on May 5 include W. J. Sloane, M. J. Whittall Associates, Bigelow-Hartford Carpet Co., Stephen Sanford & Sons, Inc., Percy & Anderson group, Bozart Rug Co., Breslin Brothers Co., J. R. Shoaff & Co., Firth Carpet Co., Hardwick & Magee Co., Archibald Holmes & Son, A. & W. Karagheusian, Inc., Thos. L. Leedom Co., Magee Carpet Co., Marshall Field & Co., Molloy-Skelly Carpet Co. group, Geo. Nicols & Co., Philadelphia Carpet Co., Chas. W. Poulson Co., Inc., Joseph Wild & Co., and Crex Carpet Co.

AMSTERDAM, N. Y. The Mohawk Carpet Mills, Inc. are operating on curtailed schedules. An official of the company stated that while no general shut down is contemplated, a further decrease in working hours may be necessary.

Textile Markets in Brief

Cotton Markets: **Continued quiet in all sections of goods market, with exception of few specialties; few changes in gray goods prices; mill curtailment increasing. More inquiries for cotton yarns, but little better actual business. Price fluctuations in speculative raw cotton market have practically balanced and exerted no positive influence on yarns and cloths.**

Woot Markets: **Men's wear styles are scanning the horizon for new ideas for the spring, 1925, season. New shades of tan are foreseen as possible successors to powder blue. Current business is developing slowly through topcoatings and tropicals are good. Women's wear in slack period watching developments in garment trade. Carpets opened for fall, 1924, on Thursday, May 1, with some mills to name prices May 5. Worsted yarns quiet; prices unchanged. Raw wool buying is spotty with increasing interest in fine foreign wools which are held firmly.**

Silk Markets: **Better tone noted in silk markets. Raw silk higher on heavy buying in primary markets. Large distribution going on in finished silks at low prices. Retailers taking biggest percentage of goods.**

Knit Goods: **Spotty improvement in hosiery buying in the last two weeks; good business placed on a number of lines, notably women's all-fibre goods, fancy tops for misses' and children, and chiffons, practically all for quick delivery; still a trading market. Underwear almost completely stagnant, with little life in any division. Knitted outerwear exceptionally dull.**

Underwear Exports Off

Shipments Smaller to All Countries Except Argentina and Cuba

An interesting summary of export business in underwear during 1923 is presented in a recent bulletin of the Department of Commerce, which follows:

Decline in the value of shipments of cotton knit underwear to all important countries except Argentina and Cuba is shown in 1923 figures compiled by the Commerce Department. The greatest decrease in trade was with England; the 1923 exports to that country being over a million dollars less than those of 1922. Another striking change was the decline in shipments to the Netherlands, which in 1922 stood fourth in the list of purchasers of cotton-knit underwear, taking goods to the value of $451,786. In 1923 Netherlands bought only $65,899 worth of knit underwear and was exceeded in quantity purchased by 16 countries. Another market which showed a large decrease was Australia, which took less than half as much in 1923 as in 1922.

In spite of this large decline in many of the leading markets for knit underwear, total exports fell off only about one million dollars, to $5,025,008, as compared with $6,185,980 for 1922. This result was due to a large increase in trade with almost all Latin American and West Indian markets. Although none of these countries, with the exception of Argentina and Cuba, are very large purchasers of cotton knit underwear, the value of the total amount taken is very large and showed a marked increase in 1923 over 1922. In fact several South American countries purchased American underwear in 1923 valued at over twice as much as in the previous year. Considering the fine showing made by these markets in 1923 and the good economic conditions prevailing in Latin American and West Indian countries at the present time these markets should prove a most profitable field for export endeavor.

Small Percentage of Total

No figures for domestic production of cotton knit underwear are available since 1921, but in that year underwear to the value of $94,509,083 was manufactured in the United States. From these figures it can be seen that while the exports of cotton knit underwear are not a large percentage of the domestic production they are nevertheless considerable.

The 1923 exports of wool knit goods, which include outerwear as well as underwear, are not large and show only a slight change from the 1922 figures. The exports of wool knit goods in 1922 were valued at $388,355 and those for 1923 at $374,903. Mexico was the largest purchaser of these commodities in both 1922 and 1923, taking goods to the value of $163,182 and $138,115 for the respective years. Exports to Japan showed an increase from $12,939 in 1922 to $101,265 in 1923.

CONDENSED TEXTILE ITEMS

A. S. M. E. Textile Meeting Next Week

Plans have been completed for the annual textile meeting of the Metropolitan Section of the American Society of Mechanical Engineers to be held Thursday of next week at the Rockland Finishing Co., Garnerville, N. Y. It is planned to take the 1:30 West Shore train from Weehawken for West Haverstraw.. Inspection of the plant will be followed by dinner and talks by officials of the company.

Textile executies, even if not members of the A. S. M. E., may make reservations for the meeting through James W. Cox, Jr., 320 Broadway, New York.

* * *

Textiles Shown at French Exposition

Among the many interesting exhibits at the French Exposition which closed at the Grand Central Palace, New York, Friday of this week, were several displays of textiles. The most extensive of these was the composite showing of the Soieries de Lyon, which comprised the fabrics of many of the great silk manufacturers of that section. Heavy brocades were prominent among the fabrics shown and in addition the use of artificial silk in various combinations was a feature.

A novel display was the transparent tapestry made by La Tapisserie Ajouree, and imported by J. R. Herter & Co. of New York. These are made by a patented process with the same motif on each side, in both antique and modern designs An extensive line of eponges was shown by M. Jalla et Cie.

The fashion show was the feature of the exposition and gave visitors an opportunity to see the latest Parisian models in morning, afternoon and evening gowns.

Photographs of the textile machinery manufactured by N. Schlumberger Co., Guebwiller, France, were shown in the booth of the Framerican Industrial Development Corp.

* * *

Chamber of Commerce Meeting Next Week

Many vital topics relating to American business and industry will be discussed at the meeting of the Chamber of Commerce of the United States at Cleveland May 6 to 8. Headquarters will be at the Hotel Statler. Group meetings of the various departments of the Chamber are planned, including domestic distribution, finance, manufacture, transportation and communication, civic development, foreign commerce, insurance, and national resources production.

In addition general sessions will be held at which prominent men will speak, including Sir Esme Howard, British Ambassador; Secretary of the Navy Wilbur; General H. M. Lord, director of the Bureau of the Budget; Alfred Stone, cotton planter of Dunleith, Miss.; and Dwight B. Heard, of Phoenix, Ariz. Julius H. Barnes, president of the Chamber, will deliver his annual address at the opening session on Tuesday.

The principal general topics to be considered are business and agriculture, European readjustment, and the responsibility and integrity of business.

* * *

Unions Urge Higher Duties on Cotton Goods

The officials of the New Bedford Textile Council, said to represent over 40,000 cotton operatives in that city, have sent to President Coolidge a petition urging a higher tariff on cotton goods to relieve the unemployment among textile workers. The petition points out that importations of cotton goods in 1923 were greatly in excess of any previous year and state that the industry is seriously menaced and that prompt action is necessary to prevent hardship and suffering to employes. They urge that some action be taken through the flexible provisions of the tariff act and state that many thousands of employes are wholly unemployed and many thousands only partially employed while millions of yards of cotton goods are being imported into this country—goods that can be readily manufactured here.

In addition the officials of the council are starting a drive to induce the general public to buy American goods and to refuse to purchase imported products.

Abraham Binns, president of the Textile Council, received a letter from C. B. Slemp, secretary of the President, which states "I have laid before the President your letter of the 26th and he has carefully noted all you have said regarding the Cotton Textile Industry. He is at once bringing this matter to the attention of the chairman of the Tariff Commission.

Labor leaders here are encouraged that the request has met with such prompt action on the part of the Chief Executive.

* * *

Higher Cotton Index in Manchester

MANCHESTER, ENG.—The *Cotton Trade Review* (Manchester) index of current (April 11) raw cotton, yarn and cloth prices is 255, as the average, an advance of 20 points on the month. On April 13, 1923, the figure was 214, and on December 28, 1923, 272.

For a basis the price ruling on July 31, 1914 in each case is taken to represent 100. On the month, American cotton and American yarn have risen 33 points and 26 points, bringing the index numbers to 291 and 285 respectively. Egyptian cotton at 263 is an advance of 18 points and Egyptian yarn is 15 points higher at 215. Cloth at 223 is 12 points up.

* * *

To Survey European Textile Market

WASHINGTON, D. C.—Trade conditions in Europe affecting the American market for textile products and their raw materials will be studied by Edward T. Pickard, chief of the Textile Division of the Department of Commerce. Mr. Pickard will sail on May 3 for London. He expects to be gone about three months.

* * *

Textile School Fraternity Meets

The Phi Psi fraternity, with chapters at Philadelphia, Lowell, New Bedford and Bradford-Durfee textile schools, held its annual convention at Fall River, Mass., Friday and Saturday of last week, under the auspices of the Delta chapter of the Bradford-Durfee school. A theatre party was held on Friday night and on Saturday a business meeting took place. The annual banquet was served on Saturday night.

* * *

Celebrates End of Bowling Season

The Lorraine Community Association of the Lorraine Mfg. Co., Westerly, R. I., celebrated the termination of the bowling season on Thursday evening of last week. This was the second anniversary of the Lorraine Bowling League. The Community House was formally opened last fall.

After dinner was served to the various teams in the hall, prizes for the bowling tournament were awarded by A. Dubuc, pesident of the Community Association. W. B. MacColl, treasurer of the company, made a short address. The evening closed with an entertainment and dancing.

* * *

Alabama Mills Need More Power

HUNTSVILLE, ALA.—Several of the large cotton mills of Huntsville say the expansion of their mills and the building of new mills here is retarded, due to the lack of sufficient electric power.

The Alabama Power Co. is making a fight for the construction of an electric circle through North Alabama, to reach Huntsville so that these cotton mills may be supplied with electric power from the steam plant of the company at Muscle Shoals. The case of the power company for the erection of this transmission line has just been transferred from the Alabama Public Service Commission to the circuit court at Montgomery. On petition of the Huntsville Manfuacturers' Association and the Lincoln Mills of Alabama, Judge Walter J. Jones cited A. G. Patters, H F. Lee and Frank P. Morgan, members of the Alabama Public Service Commission, to appear May 1 and show cause why the court should not issue a writ of mandamus requiring the commission to render a decision on the petition of the Alabama Power Co. to construct this transmission line from the Muscle Shoals plant.

The Lincoln Mills at Huntsville are completing a large cotton mill, and this mill will be without electric energy for operation until more power is supplied over a transmission line.

* * *

Civil Service Examination for Technologist

An open competitive examination for technologist, associate technologist and assistant technologist is announced by the U. S. Civil Service Commission. Examinations are to fill vacancies in the Bureau of Standards. Applicants must select one of several optional subjects, including, among others, textile technology. Full information and application blanks may be obtained from the U. S. Civil Service Commission, Washington, D. C.

* * *

Return Evil Scored by Broadsilk Men

At a meeting of Division D of the Silk Association of America held on Tuesday at the Advertising Club, the chief topic considered was the suggestion that an examination bureau be started at once to mitigate the return evil. About 80 members of the Division were present at the meeting which was called by the chairman Mr. Post.

Several other topics were to come up for discussion but the only question considered at any length was the above. It was suggested that a committee be formed to go thoroughly into the matter and that this body could consider in detail the various plans in connection with it.

A majority of those present concurred in the suggestion that some impartial body was necessary to consider questions of imperfections in merchandise returned. That the broadsilk men are now at the mercy of the buyer was pointed out, for there is no standard by which imperfections can be determined. Merchandise that is taken without question in a strong market becomes suddenly imperfect when the market is poor.

Mr. Post is expected shortly to appoint a committee for the purpose of going thoroughly into the matter.

THE PERSONAL PAGE

The will of the late James D. Hammett, president and treasurer of the Chiquola Mfg. Co., Honea Path, S. C., and Orr Cotton Mills, Anderson, S. C., has been filed for probate. The will makes Mrs. Lula F. Hammett, widow of the deceased, Geo. P. Hammett, his brother, and J. E. Sirrine of Greenville, S. C., his friend and business associate, executors of the estate. The will bequeaths $20,000 to Wofford College of Spartanburg, S. C., income from which is to be used in aiding deserving students who are unable to pay their tuition. A bequest is also made to St. John's Methodist Church. The residue of the estate is left to his widow and four children. While no official figures have been announced, it is unofficially said that the estate of the late James D. Hammett amounts to about one million dollars.

Horace B. Cheney, of Cheney Bros., silk manufacturers, So. Manchester, Conn., was one of the speakers at the meeting of the Taylor Society in Boston on Friday of last week.

In addition to William M. Butler, well-known cotton manufacturer and attorney of Boston, who was elected a "delegate at large" to the Republican National Convention in the primaries in Massachusetts on Tuesday, the following textile manufacturers were elected delegates: John Skinner of Northampton, former treasurer of the West Boylston Mfg. Co.; Joseph K. Milliken, treasurer of the Mt. Hope Finishing Co., North Dighton.

James J. Sullivan, president of Wm. Brown Co., Philadelphia, and a director of the Textile National Bank of this city, has been honored by the Papal See, recently being elevated to the rank of Private Chamberlain of the Cape and Sword. For several years he has been treasurer of the Catholic Young Men's Association and is a member of the Alumni Sodality and the Catholic Philopatrian Literary Institute.

Solon D. Bausher, hosiery and underwear manufacturer of Reading, Pa., and former president of the National Association of Hosiery and Underwear Manufacturers, has been unanimously elected president of the Reading Chamber of Commerce.

John F. Tinsley, vice president and general manager of the Crompton & Knowles Loom Works, Worcester, Mass., spoke before the Eastern Conference of the Savings Bank division of the American Bankers' Association at Hotel Commodore, New York, on April 25.

Ralph A. Day of R. A. Day, Inc., coat and suit concern, will sever his connection with that organization on May 15 to become actively associated with Onyx Hosiery, Inc., with plants in Dover, Passaic and Wharton, N. J., of which he was recently elected a director.

Andrew E. Vaughan, Jr., of Pottstown, and Miss Mabel C. Field, of the same borough, were married there recently, a reception with 400 guests following. The bridegroom is associated with his father in the Vaughan Knitting Co., Inc., Pottstown.

W. K. Greer, agent for the Hoosac Cotton Mills, North Adams, Mass., as mayor of that city, accompanied the Drury High School band of North Adams to New York last week, where they had dinner on board the Leviathan.

John Davidson, agent of the Bigelow-Hartford Carpet Co., Clinton, Mass., and Mrs. Davidson, will sail from New York on May 4 for a three months' European trip, during which they are to visit the cemetery in France where their son, Harold Davidson, who died while in service in the World War, is buried.

The annual meeting of the Sauquoit Quarter Century Club of the Sauquoit Silk Mfg. Co., Phila., was held at Warrington Inn, Warrington, Pa., on April 26. The meeting was postponed to this date because of the death of H. W. Inskeep, who died on March 1, 1924. Addresses were made by John Schimpf, H. A. Beneke, Paul Knauer, Gus Kinzel, Christian Krumm, J. H. Reichling, Pierre Dalmasse, Ernest Messmer, H. Sittner, H. Oggenfuss and L. G. Schlehner. The club presented John Schimpf, the retiring president, with an attractive and useful gift.

R. B. Hibbard has been appointed general sales manager of the Normandie Silk Mills, Inc., Gloversville, N. Y.

George W. Kelly, who was formerly Eastern sales manager of the Allen A. Co., Kenosha, Wis., will become associated with the O. J. Gude Co. of New York, outdoor advertising, on May 1.

J. C. Craig, eastern representative of the Mauney-Steel Co., Providence, R. I., was elected a director in the company at the recent stockholders meeting.

George S. Fox has taken the position as superintendent for the Renfrew Woolen Mills, Renfrew, Ontario, Canada. Mr. Fox comes from Cambridge, Mass., but was formerly employed for the Columbiaville (Mich.) Woolen Mills.

E. E. Lovern has resigned as superintendent of the Liberty Cotton Mills, Dallas, Ga., and returned to his former position with the Wilson Co., Greenville, S. C.

Rudolph J. Shutting, the birds-eye view artist of Chattanooga, Tenn., who has done a great deal of work for Southern textile mills, is in a Chattanooga hospital undergoing treatment. Recent reports from Mr. Shutting advise that he is improving and will soon be out.

Carl Hahn, Jr., has been appointed superintendent of the Colonial Woolen Mills Co., Cleveland, Ohio, succeeding George Seagraves. Mr. Hahn has been acting as assistant superintendent.

W. F. Smith, formerly superintendent of the Bibb Mfg. Co., Reynolds, Ga., has taken a position as night superintendent of the Perkins Hosiery Mills, Columbus, Ga.

B. L. Ledwell is now superintendent of the Blue Ridge Cotton Mills, Connelly Springs, N. C.

O. C. Radford has been appointed manager of the Atlanta branch of The Graton & Knight Mfg. Co. makers of leather belting and other leather products. Mr. Radford has been with this concern for several years and up to the time of his transfer to the Atlanta District was Branch Manager at New Orleans. He will make his home in Atlanta and will have charge of all sales in the Carolinas, Florida, Alabama, Georgia and sections of Tennessee and Mississippi.

M. J. Kennedy is to cover the South Carolina territory for The Graton & Knight Mfg. Co. He has been with Graton & Knight for four years and has worked both at the main factory and at the Atlanta branch for this company.

Fay H. Martin, who has been associated with the Woonsocket Machine & Press Co., Inc. as sales representative, has been appointed manager of the company, succeeding John Montgomery who has resigned to enter another line of business. Mr. Martin received his early training at the Lowell Machine Shop and was master mechanic for the Boott Mills, Lowell, Mass., for seven years. He spent several years in development work on the old Dunn flyer and became associated with the Woonsocket Machine & Press Co. in 1917.

Norman P. Thomas, superintendent of the Jackson Mills of the Nashua (N. H.) Mfg. Co., presented a paper at the meeting of the Taylor Society in Boston last week on "Significant Savings in Textile Mill Operation."

G. A. Toby has taken a position as assistant superintendent of the Morven Cotton Mills, Inc., Durham, N. C. He comes from Athens, Ga.

George B. Kirwin has taken the position as designer for the Rock River Woolen Mills, Janesville, Wis. Mr. Kirwin was formerly employed at West Warren, Mass.

C. Eric Mosman has accepted a position as assistant chemist at the United Piece Dye Works, Lodi, N. J. Mr. Mosman comes from Columbus, Ohio.

F. H. Vannah, formerly boss carder for the North Adams (Mass.) Mfg. Co. and now working in Averill Park, N. Y., expects to return to North Adams to take charge of the new carding and spinning departments at the Hoosac Worsted Mills of the Arlington Mills.

Charles Fralick, overseer of carding for the Park Mills, Inc., Sabattus, Me., has resigned his position.

T. Edward McDermott formerly with A. L. Sayles & Sons, Pascoag, R. I. has taken the position as overseer of finishing for the Arlington Mills, Lawrence, Mass.

A. J. Kelley, overseer of carding for the Raeford (N. C.) Cotton Mills Co. has resigned.

F. C. Rollins has become overseer of carding and spinning for the Eastside Mfg. Co., Shelby, N. C. He comes from Rock Hill, S. C.

Clyde Fortado, who has been overseer of weaving for Joseph Hall Mills, Norwich, Conn. for the past 15 months has severed his connections with that company.

E. O. Clarkson has taken a position as night overseer of carding in the Florence Mills, Forest City, N. C.

Fred L. Mason, overseer of spinning in the Aragon (Ga.) Mills has resigned.

J. Lynch has taken the position as overseer of weaving for Joseph Hall Sons, Norwich, Conn., succeeding Clyde Fortado.

F. D. Flack, night overseer of carding in the Florence Mills, Forest City, N. C. has resigned to accept a similar position with the Wade Mfg. Co., Wadesboro, N. C.

J. A. Adams has taken a position as overseer of carding in the McComb (Miss.) Cotton Mills.

J. O. Epps, who recently resigned as overseer of carding and combing with the Clover (S. C.) Mills Co., has become connected with the Cramerton (N. C.) Mills, Inc.

D. C. Eakere, overseer of carding for the Madora Spinning Co., Mt. Holly, N. C., has resigned to accept a similar position with the Eagle Yarn Mills, Inc., Belmont, N. C.

Charles St. George, who has been boss finisher for the Canadian Dyers' Assn. Ltd., Toronto, Can., and Mrs. St. George, are passing their honeymoon with the former's parents in Warren, Mass. They were married in Toronto on Easter Monday.

George S. Kay has succeeded Warren Bonney as overseer of the mule room of the Rockdale mill of the Paul Whitin Mfg. Co., Northbridge, Mass. He comes from Plainfield, Conn.

John O'Neil, overseer of spinning at the Arctic Mills of B. B. & R. Knight, Inc., Arctic, R. I., was elected president of the Pawtuxet Valley Overseers' Association at the annual meeting, held recently. Vice presidents elected, are: John E. Bennin, master mechanic of the Centerville Cotton Mill, Centerville; Peter Connors, overseer of spinning in the Interlaken Mills, Arkwright; Louis Levesque, overseer of spinning for the Coventry Co., Providence; John H. Bowker, overseer of the cloth room in the Warwick Mills, Centerville, and Edward Friar, overseer of weaving for the Hope Co., Hope. Clifford Eccleston, overseer of carding in the Arctic Mills was elected secretary and James Wood, overseer of carding in the Warwick Mills, Centerville, treasurer.

Edward C. Berry has taken the position as master mechanic for the Purity Wool Preparing Co., Peterboro, N. H. Mr. Berry was formerly employed for the Atlantic Mills, Stottville, N. Y.

Charles Sarahan, who has been connected with the Island Woolen Co., Baraboo, Wis., for 50 years, was the guest of honor at a dinner given by directors of the company recently, at which time he was presented with a gift.

Melton Woods, assistant overseer of the cloth room of the Baldwin Cotton Mills, Chester, S. C., has resigned.

Louis Bussiere, second hand in the spinning room for the Adams (Mass.) Woolen Co., has been appointed overseer of spinning for the Baltic Mills (American Woolen Co.), Enfield, N. H.

Proceedings of National Association of Cotton Manufacturers' Convention

(*Continued from page* 80)

the Making of Industrial New England" was featured by two addresses. John A. Sweetser, treasurer of the Boston Mfg. Co., acted as chairman

Philip Dana, Board of Directors, N. A. C. M.

during the discussion of this subject.

The first paper was by Secretary Meserve on "The Founding and Growth of Industrial New England." This paper was another example of the care and thought with which Mr. Meserve has studied the development of industrial communities. Tracing

A. E Colby, Board of Directors, N. A. C. M.

the growth of the industrial urge from pre-revolutionary days, he outlined the location of manufacturing plants near available water-power and the creation, through these means, of new and prosperous cities. The latter part of his address was devoted to a consideration of industrial conditions in New England today and led up to the thought that in industry there is no sectionalism and that, irrespective of temporary movements, the success of that section industrially will continue and grow.

Mr. Meserve illustrated his talk by charts representing graphically the remarkable growth of New England industrial centers. His address will be found elsewhere in this issue.

Part of National Economy

A thoughtful and interesting paper on "The Cotton Industry as Part of the National Economy" was presented by Magnus W. Alexander, manager of the National Industrial Conference Board, New York, as the second part of the discussion of the general topic of the afternoon. Mr. Alexander's connection with this statistical and research organization, created and sponsored by several industries, enabled him not only to offer an array of valuable statistical information but to analyze and interpret it in a particularly constructive manner. Illustrating his talk with charts, Mr. Alexander took up various phases of industry including hours, wages, sectional growth, foreign trade, etc., and slowly developed the thought that in the present complex organization of the industry in this country and of the world, we are all inter-dependent and that consequently the cotton industry is a part not only of our national economy but of world economy as well. Mr. Alexander's paper will also be found elsewhere in this issue.

Trade With Australia

An interesting feature of the opening session, not formally scheduled on the program, was a brief talk by J. W. Sanger, U. S. trade commissioner to Australia, who happened to be in this country at the time. Mr. Sanger pointed out that while Australia has a population of less than 6,000,000 they purchase more goods from the United States than do the 400,000,000 people of China. Their annual imports in this country reach a value of $120,000,000, the bulk of it being manufactured goods. This percentage, according to Mr. Sanger, is increasing in spite of the fact that tariff rates give preference to British-made products.

The significant point brought out by Mr. Sanger, however, was in connection with cotton goods. He stated that while Australia buys $100,000,000 worth of these goods a year, America's share amounts to less

John A. Perkins, Board of Directors, N. A. C. M.

than 2%. Admitting the difficulty of diagnosing the reason for this situation, the speaker read a letter from a large Australian textile importer which cited two basic causes, namely, the fact that buyers in that country have become accustomed through their British connections to deal di-

B. H. Bristow Draper, Board of Directors, N. A. C. M.

rectly with the mills themselves; and the fact that they have also become accustomed through this same connection to have their orders filled and to maintain a steady source of supply, irrespective of changing business conditions. The importer remarked that he understood the manufacturing and merchandising functions of American mills were separate but emphasized the fact that Australians liked the British way of doing things. He particularly called

AN AMERICAN-NATIONAL CONVENTION

A feature of the convention of the National Association of Cotton Manufacturers was the cordial invitation received from the American Cotton Manufacturers' Association through its New England Committee to attend its convention, May 27 and 28, at Hotel Traymore, Atlantic City. The letter of invitation follows:

Providence, R. I., April 28, 1924

Mr. H. C. Meserve,
Secretary, The National Association of Cotton Manufacturers,
Boston, Mass.

My Dear Mr. Meserve:—

Realizing that the condition of textiles is the most unsatisfactory that has ever existed in the history of the industry, also that one section of our common country cannot be seriously affected unless all sections are affected in relative proportion from the same causes, officials of the American Cotton Manufacturers Association, through its New England Committee, made up largely of members of the National Association, extend a most hearty invitation to all members to join them in Convention at Atlantic City, May 27th and 28th, at Hotel Traymore.

A more intimate acquaintance between northern and southern men should accomplish a much better understanding for the good of all. The eastern manufacturer today has serious problems. The southern manufacturer also has his problems arising from the same general sources. It is a well understood fact that New England interests are not going to retire from the cotton manufacturing business; if economic conditions force a removal to more southern latitudes, such a removal will unhesitatingly be made. The southern manufacturer is fully cognizant of the serious side of his problems which will be developed by a wholesale removal of New England mills to southern territory, therefore the officers of the American Association are taking this opportunity to urge each and every National member to attend the Atlantic City convention in order to promote a better understanding and to devise ways and means to protect and perpetuate this great American industry.

Remember the place and date: Hotel Traymore, Atlantic City, N. J., May 27th and 28th.

Sincerely yours,

NEW ENGLAND COMMITTEE

(Signed) Philip C. Wentworth, Chairman;

Frederick W. Howe	**Kenneth Moller**
Fred C. Hall	**Charles M. Holmes**
A. S. West	**Irving Southworth**
W. F. Shove	**B. H. Bristow Draper**
E. Kent Swift	**James E. Coburn**
Col. Jesse Eddy	**Isaac T. Prosser**
Robert Amory	

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Nashua Mills	Boston Mfg. Co.	The Quinebaug Co.
Jackson Mills	Lancaster Mills	The Wauregan Co.
Conestogo Mills	P. H. Hanes Knitting Co.	Berkshire Mfg. Co. (Frankford, Pa.)
United Hosiery Mills Corp.	(For Export)	Sam'l A. Crozer & Son

No. 4 of a series

attention to the fact that English mills make sure that export orders are filled, irrespective of domestic demand, while American suppliers seem interested only when there is a surplus. He stated frankly that these two obstacles must be removed or explained before the sale of American cotton goods in Australia could increase to any marked degree.

In closing, Mr. Sanger stated that it was the function of the Department of Commerce which he represents to develop and encourage the movement of American goods abroad and that he would be glad to be in a position to explain American practices to his Australian friends.

Thursday Morning Session

THE Thursday morning session of the convention comprised a short business meeting to consider the report of the Resolutions Committee, and a continuation of the discussion of the general topic "Cotton — and the Making of Industrial New England."

C. F. Broughton, chairman of the Resolutions Committee, presented its report and all the resolutions offered were unanimously adopted. The most important of these was that dealing with the tariff situation in relation to the alarming increase in imports of cotton cloths and read as follows:

Imports and the Tariff

"Whereas, For many years previous to the enactment of the Underwood tariff of 1913, the imports of cotton cloth averaged about 50,000,000 sq. yds. under a duty of about 42%; and

Whereas, The Underwood bill reduced this rate to an average duty of less than 20%, the possible effects of which, however, were not realized in materially increased imports because of the war; and

Whereas, In consequence of this situation the rates on cotton cloth in the present tariff act were only slightly increased over the Underwood act and were made very materially lower than had previously obtained; and

Albert Farwell Bemis, Board of Government, N. A. C. M.

Whereas, This has resulted under present textile conditions in an enormous increase in importation amounting to over 200,000,000 sq. yds., equal to some 300% more than the former average and consisting mainly of the high-grade fine-yarn fabrics made in New England and equal to the production of 1,500,000 to 2,000,000 spindles, thus causing short-time operation of much machinery and loss of employment to many operatives,

Therefore, Be It Resolved, That the president, by and with the consent of the board of government, appoint a committee with full powers to act for the correction of this situation by instituting proceedings to obtain an increase of tariff on cotton goods through the operation of the flexible clause section 315 of the Fordney Tariff Act of 1922, and to correct errors in classifications such as pertain to box-loom work, or in such other ways as may seem wise and desirable.

Russell B. Lowe, Board of Government, N. A. C. M., and Chairman, Thursday Morning Session.

Also, Be It Resolved, That a copy of this resolution, with appended detail, be sent at once to all members of this association and to the secretaries of all other organizations interested in the textile industry."

Appended to this resolution was an important and interesting summary of the situation with regard to recent increases of cotton goods imports. This contained a great deal of statistical information, much of which has been previously published, but analysed in a clear and concise manner. The brief was concluded with the following remarks:

"American labor and American capital must be protected from this textile invasion. It is of great and equal importance to employer and employe. Our textile industry is at a very low ebb, curtailment being general and serious. The goods which are coming in in such great volume should be made here and much needed employment furnished to both capital and labor.

"The flexible provision of our present tariff low was especially framed to meet such a situation as this and it would seem to your committee that this association should take the lead in some definite form of action immediately to bring relief from this situation.

"We note with great interest the newspaper reports that several labor organizations have recognized the danger to American labor in the present importation situation and that they have sent a letter to President Coolidge on the subject. In this most important subject the stockholder, the manufacturer and labor can stand side by side fighting for a common cause."

"NEW ENGLAND MADE"

"In our present difficulties here in New England why not take a leaf out of the importer's book? We recognize that the word 'imported' has selling value. It sounds exclusive and in the past, at least, it sounded like quality. New England goods also have always had a reputation for quality. Why not use this method of the importers and capitalize 'New England Made?' New England is preeminently the producer of branded cotton cloth and it would be fairly simple to couple the words 'New England Made' with these well-known brands."—*From President Amory's Annual Address.*

Other resolutions presented covered the subjects of taxation, "truth in fabric" legislation, furtherance in sale of American-made fabrics, etc. These are presented below:

Taxation

WHEREAS, business is being seriously hampered by heavy taxation:

THEREFORE, BE IT RESOLVED that the National Association of Cotton Manufacturers through its members, urge Congress to exercise the strictest economy in appopriations thereby enabling the government to reduce taxes.

American-Made Fabrics

WHEREAS, the sale of imported goods has shown a tremendous increase, in volume nearly five times that of 1919.

BE IT RESOLVED, that the president, by and with the consent of the Board of Government appoint a committee to inaugurate a campaign to further the sale of American-made fabrics.

"Truth in Fabric" Bill

The Resolutions Committee has considered the subject of the French-Capper "Truth in Fabric" Bill now pending in Congress and believes that the bill as drawn is impractical, unworkable and fraught with difficulties and dangers to the textile industry and of no benefit to the consuming public.

THEREFORE, BE IT RESOLVED That The National Association of Cotton Manufacturers go on record as being opposed to the passage of this bill and call upon its members to use their influence against its passage.

C. F. Broughton, Board of Directors, N. A. C. M., and Chairman, Resolutions Committee.

Thanks to Speakers

RESOLVED That The National Association of Cotton Manufacturers at its 116th meeting desires to express its deep appreciation of the able and inspiring address of Samuel M. Vauclain, president of the Baldwin Locomotive Works, who has taken so much time from his extremely busy life to contribute to the success of this meeting.

RESOLVED That the thanks of the association are hereby cordially extended to the speakers on our program who have given us the result of the specialty in which they are engaged.

Membership Activities

RESOLVED That the efforts of the Membership Committee to increase the membership of this association are especially appreciated at this time. We believe that there are many mills not now members who should become sustaining members and we urge all who are now sustaining members of the association to use their best effort to forward this purpose.

There are also many agents and superintendents who are eligible for active membership who ought also to join with us and the Membership Committee desires your cooperation in securing eligible names.

The work of the association, we believe, merits our support and the benefits derived from this, the oldest trade association in the country, make it a kindness to present this opportunity to our friends who are not now members.

Community and Industry

The first of the two papers on the

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CALHOUN MILLS	Calhoun Falls, S. C.	CENTRAL MILLS	Sylacauga, Ala.
MARY LOUISE MILLS	Cowpens, S. C.	SYCAMORE MILLS	Sycamore, Ala.
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general topic "Cotton And the Making of Industrial New England" which comprised the formal part of the session, presided over by Russell B. Lowe, was presented by S. H. Thompson, of the Thompson Hard-

James E. Coburn, Chairman, Technical Session, N. A. C. M.

ware Co., Lowell, Mass., on the subject "The Community and the Industry." This paper was another contribution to the series of historical treatises which have been developed at conventions of the association in recent years and which have been an important feature of its work. Mr. Thompson considered particularly the community of Lowell and traced the remarkable effect of industrial growth upon that community's size and prosperity. His paper will be found elsewhere in this issue.

Railroads and Industry

The second paper was on the subject "The Railroad and the Industry" by Gerritt Fort, vice-president of the Boston & Maine Railroad. Mr. Fort took up a few of the problems which are troubling the transportation companies of the country and suggested certain ways in which shippers could cooperate toward insuring more satisfactory and profitable conditions in the transportation industry. His address will be found elsewhere in this issue.

At the conclusion of Mr. Fort's paper, Capt. William P. White, of the Lowell (Mass.) Paper Tube Corp., called attention of the members to the part that they should play in connection with legislative action affecting the activities of transportation companies. He stated that the association has able representation in tariff matters but that in his opinion railroad legislation is of even greater importance to New England than the tariff. He expressed the belief that eventually manufacturers will have to meet foreign competition and that furthermore, England cannot always manufacture at a loss, but that the transportation problem demanded serious and continuous attention.

He referred to several bills pending at Washington affecting transportation and stated that shippers have not done their part in preventing unsound Congressional action. He referred to the New England Traffic League which has comparatively small membership but which he described as the only fighting force in that section. The association is not a member of this league he pointed out. In conclusion he called on members to see to it that their representatives in Washington are informed of their position in transportation matters. Capt. White's suggestions were indorsed by President Amory.

The Technical Session

THE technical session began in the Swiss Room at 2:30 Thursday with an attendance of well over 100. Chairman James E. Coburn, agent of the Androscoggin Mills, Lewiston, Me., first called upon Secretary Fisher of the Technical Committee to explain the nature of the latter's work. Secretary Fisher's statement was covered in large part in the report of Secretary Meserve but in addition he explained that the committee's title had been changed from "research" to "technical" as being more accurately descriptive of its work. He then described in considerable detail the methods by which the committee through its secretary cooperated with the Federal Specifications Board, Committee D-13 of the A. S. T. M., the textile and technical schools as well as in the compiling of the association bulletin and year book. He gave several illustrations of the character of service available to members and urged them to take greater advantage of it. Chairman Coburn testified to the value of the service performed by the department and expressed the belief that many more members could make use of it to advantage.

Prof. Haven's Paper

In introducing Professor Haven of Massachusetts Institute of Technology he stated that cotton manufacturers are becoming impressed with the value and need of scientific research and testing. Professor Haven prefaced his paper on recent research at M. I. T. with the statement that he considered it a privilege to have the opportunity of describing certain of the textile work at the institute to men who are able to view the problems in a practical way. The greatest textile research laboratory is the mill but there are some problems that require the facilities and scientific handling that is only possible in a laboratory. His paper was illustrated by numerous lantern slides of novel apparatus and charts and held the close attention of all present. The paper, which is printed elsewhere, was discussed by Kenneth Cook of the United States Rubber Co.'s research laboratory as follows:

"Some of the items in Prof. Haven's interesting paper which you have just heard should afford a basis for lively discussion. The question of moisture in fabrics and yarns has always been a much debated subject and will probably continue to be such for a long time to come. All the research work which is being done along these lines, however, will help eventually in the establishment of definite standards.

"There is no dispute in regard to the methods of test for the determination of regain or moisture content which he has outlined. There is some doubt, however, as to whether one hour is sufficient time for the average fabric or yarn to regain its full amount of moisture when exposed to standard atmospheric conditions of 65% relative humidity and 70° F. temperature. No doubt some of the more openly constructed fabrics will regain in this time, especially under carefully regulated laboratory conditioning rooms, but it would seem much safer to recommend a longer period of time when testing is to be commercially carried out on a large variety of fabrics where fibre, twist, construction, etc., vary.

"It is significant to note that the length of time for conditioning of skeins of yarn for testing as recommended by the American Society for Testing Materials tentative standards last year has been raised in the revised tentative standards this year from two to three hours because consumers and producers had found that two hours was not sufficient.

"The old question of what should be the standard regain for cotton materials in this country should be definitely settled once and for all. The English standard of 8½% does not hold here because it is a fact that under standard atmospheric conditions cotton fabric or yarn does not contain this amount of moisture. The American Society for Testing Materials standards call for 6½% regain for fabrics and a tentative of 7% for yarns. The former figure was determined largely through Prof. Haven's moisture experiments carried on at M. I. T. a few years ago.

"Referring to the machine described for the measurement of porosity in fabrics, it would seem that this novel and ingenious device might be applied to all fabrics which are to be rubberized or finished to determine the ability of the rubber or other compound to penetrate the fabric and surround the threads and fibres. In most fabrics used in the rubber trade this is a desirable condition to have.

F. S. Blanchard, Chairman, Technical Program Committee for Convention.

The greater the porosity, the more rubber will go through the fabric.

"The importance of a "square" construction for all fabrics which are subjected to a bursting strain such as tires, hose, diaphragm, footwear and most all clothing, can not be too strongly emphasized. An extensive test carried out in our Newark laboratory some time ago on fabrics woven from the same warp but which had "off squares" varying all the way from 2.6% to 22.2% showed that for each decrease of 1% in the off square of the fabric, the bursting strength was increased approximately 3%. In other words, if a fabric has a bursting strength of 100 lbs. with a 12% off square, its bursting strength would be increased to 124 lbs. if its off square were reduced to 4%. Off square is defined as the percentage of warp crimp minus the percentage of filling crimp.

"In the measurement of crimp it is pretty generally agreed that a tension weight of 75 grams is sufficient to straighten but not to stretch a 11-23s ply yarn. On the basis of this, the following formula has been worked out which is applicable to all sizes of threads:

$$\text{Tension weight in grams} = \frac{156 \text{ (Constant)}}{\text{Equiv. single size}}$$

This formula is being used by many

NO SECTIONALISM

"In industry there is and there can be no sectionalism. There is no North and no South. The textile industry is one. It has many problems in common and its local differences are incidental rather than essential."—*From Secretary Meserve's Paper on "The Founding and Growth of Industrial New England."*

MFRS'. STOCKS

"The manufacturer on his part either has not carefully noted the development of retail sales policy or has not been so wise as he should have been in adjusting himself to the new conditions by, in turn, keeping his stocks under careful control."—*From President Amory's Banquet Address.*

A Good Time to Experiment

There is no better way to judge a yarn than to use it. No matter what is *said* about it — no matter how enthusiastic the spinner may be in describing it, the Yarn Buyer knows that the only real test is to use it and compare.

Right now is a good time to experiment. Your mill may not be as busy as it will be later. It gives you an opportunity to compare two or more different makes of yarns.

When it comes to Quissett Yarns we too could say a lot about them but we prefer to let them do the "talking."

Why not order a trial shipment for purposes of comparison? Compare the yarns themselves as to strength, feel, cleanliness, etc. Compare them on the looms or knitting machine. Check up the number of breaks. Finally, examine the finished fabrics.

And remember Quissett guarantees to maintain the standard which is already widely known as "Quissett Quality."

Carded and Combed Cotton Yarns in all Numbers and Descriptions
Ply Yarns our Specialty
Egyptians, Sea Island, Peelers, Sakelarides

Quissett Mill

New Bedford, Massachusetts

Wm. M. Butler, President Edward H. Cook, Treasurer Thos. F. Glennon, Agent

QUISSETT MEANS QUALITY

not only in the measurement of crimp but also as a proper tension to be placed on threads for twist test.

"The description of Prof. Haven's abrasion and flexure machine is interesting. We have studied carefully the problem of resistance to abrasion and flexure and have designed and built at the Textile Section in Newark several machines for this purpose. Considerable trouble was experienced at first in obtaining results which were comparable with those of actual service but recent results have indicated that there is much value to this kind of a test. We have advanced to a stage where we can predict to a fair degree of accuracy the length of service a fabric might reasonably be expected to render. It is hoped that this form of test will be developed to a point where the valuation of a fabric may be determined prior to the making up of the manufactured article.

"In this connection it may be interesting to note that we have found there is a great difference in various fibres as regards their ability to withstand flexure. The type of weave, texture, twist, etc., all influence the so-called wearing qualities.

"Results have shown that rubberized cord fabrics which are woven with about 2½ picks to the inch withstand abrasion and flexure better than square woven fabrics which have about 23 threads to the inch both warp and filling, and that web cord fabrics made without any filling threads but solutioned in latex, withstand flexure better than woven cord fabric."

The only other discussion was that by James McDowell, cotton buyer for the Sharp Mfg. Co., who had been

G. J. Esselen, Jr., Who Discussed Mr. Nivling's Paper

prevailed upon to take the place at the last moment of F. R. McGowan, chief of the Textile Section of the U. S. Bureau of Standards. Mr. McDowell complimented Professor Haven on the character and value of the work at the Institute and expressed the hope that greater attention might be devoted in the future to research on the cotton fibre as without scientific knowledge of the fibre much of the research on yarns and cloths must be inconclusive or of little value.

Mr. Nivling's Paper

The second paper of the afternoon was on the subject "Fluidity or Viscosity in Relation to the Sizing Value of Starches" by W. A. Nivling, printed elsewhere in this issue.

There was formal discussion of this paper by Russell C. Smith, chemist of the Appleton Company, Lowell, Mass.; Russell Hathaway, chemist of the Cotton Research Co., Boston; G. J. Esselen, of Skinner, Sherman and Esselen, Inc., Boston, and A. H. Grimshaw, instructor in chemistry at the New Bedford Textile School. Mr. Esselen spoke in part as follows:

"I am going to confine myself to a consideration of the first third of the paper in which fluidity and viscosity are discussed as physical properties on which certain characteris-

James McDowell, Who Participated in Technical Discussion at Thursday Afternoon Session

tics of starch solutions depend. If I appear somewhat critical of this part of the paper I trust that it will not be thought that I am unmindful of the valuable points which Mr. Nivling brings out later, points which I am sure you have all appreciated as the paper was presented.

"I am in entire agreement with what was said with regard to the rather hazy notion which most people have of what viscosity and fluidity really mean. As these terms were being discussed, however, I was wondering whether some of the remarks in the early part of the paper might not prove misleading to the non-technical user of starch. With this in mind, I am going to beg Mr. Nivling's indulgence and ask over again two of his questions, and then briefly give my idea of what the answers should be.

1. What is meant by fluidity?
2. What is meant by viscosity?

"While strict definitions might be quite technical, the conceptions are really very simple. Let us, for example, take the three well known liquids: water, maple syrup, and molasses, and for convenience let us take maple syrup as a standard for comparison. If we consider water, this may be described either as 'more fluid' than maple syrup or 'less viscous'. Both of these expressions mean the same thing. Molasses, on the other hand, may be spoken of either as 'less fluid' than maple syrup or 'more viscous' and again the two terms are equivalent. In actual viscosity or fluidity measurements,

K. B. Cook, Who Participated in Technical Discussion at Thursday Afternoon Session

water is often taken as the standard for comparison. On this basis, a liquid which is ten times as viscous as water is obviously only one-tenth as fluid. In other words, when expressed numerically, fluidity is the reciprocal of viscosity.

"I also wonder whether the 'summing up' gives quite the correct impression. Mr. Nivling says that '30 Fluidity' means

'(a) That a given *volume* of liquid will flow in 30 *seconds*.

'(b) That in a *specified unit of time*, 30 *Cubic units* of liquid will flow.

'The same applies to other figures used such as 50 Fluidity, 70 Fluidity, etc.'

"It may be worth while to consider these statements critically for just a minute. Let us first take the statement under (a) and let us assume that the given volume is 30 cubic inches and that this flows in 30 seconds, or one cubic inch every second. According to the definition, a viscosity of 60 would mean that the same volume (30 cubic inches) would flow in 60 seconds, or one-half cubic inch every second.

"Now let us see how the same two examples work out under statement (b). This says that in a specified unit of time, which we have taken to be 30 seconds, 30 cubic inches will flow, or one cubic inch per second as before. A viscosity of 60, according to this second statement, means that 60 cubic inches will flow in 30 seconds, or 2 cubic inches every second, or four times as much as under the first statement. The two statements, therefore, are by no means the same thing, as seems to be implied in the paper.

R. T. Fisher, Member, Technical Program Committee, N. A. C. M.

"I think that perhaps the real difficulty comes from the fact that in an ordinary viscometer we do not usually measure viscosity directly but rather measure a property which is dependent upon viscosity as for example the number of seconds required for a given volume of liquid to flow out through a capillary under certain carefully regulated conditions. It is often possible in this way to get an idea of the relative viscosity of two or more liquids by comparing the length of time required. This, however, is very much the same as if we were to measure the length of a board by determining the time required for it to pass a given mark in a horizontal direction. The time required would obviously depend, among other things, on the force which was making the board move, the weight of the board and the character of the surface over which it was sliding. If the same apparatus were always used we could in this way obtain a measure of the relative length of different boards but if any of the three factors just mentioned were changed then the result would be varied. You will say, of course, that to avoid this we have definite units of length and measure length directly in these units rather than in units of time. The answer to this is that the scientist also measures viscosity in units of viscosity rather than in units of time and it is partly because it is more convenient for the average person to obtain his results in units of time than in units of viscosity that the confusion in terms arises. These units of viscosity are called poises and the viscosity of water at 68° F. is practically 1/100 of a poise, or as it is usually called, a centipoise. It is highly desirable that as soon as possible, comparatively simple methods be worked out for measuring viscosity directly so that the practical

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188 Summer Street

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CHARLOTTE OFFICE
Trust Building

worker can obtain results which can be expressed directly as so many centipoises and when this is done there will probably be much less confusion as to viscosity and fluidity values in the mind of the average person.

"There is one other very important reason why the viscosity of a given sample of starch is not always found to be the same when determined by different workers and this is because it was found about three years ago that starch solutions do not, strictly speaking, belong to the class of 'viscous liquids' but rather behave as 'plastic solids.' This is not the place, nor is there time, to discuss the differences between these two classes of materials. I would merely like to point out that as long as starch solutions were considered as viscous liquids and studied from the point of view of their 'viscosity' and 'fluidity' the results obtained were often hard to reconcile and to interpret. On the other hand, since such solutions have been looked upon as 'plastic solids' and have been studied from the point of view of their 'rigidity' and 'mobility,' it has been found possible from such results to predict the body, spreading power, and setting or gelatining power of starch solutions and to duplicate given properties in a solution simply from a knowledge of the values obtained by 'plastometry.' It is from this point of view that the most up-to-date studies of starches are being made and further use of this method should yield much of value to starch users."

Mr. Smith expressed the opinion that if chemical control were utilized in the purchasing of starches many of the manufacturers' sizing trouble would be eliminated. Mr. Hathaway felt certain that all who had heard Mr. Nivling's paper would agree that more attention should be directed toward size mixing and its variation as to viscosity and fluidity, that it has demonstrated that an easy, quick and accurate method of determining viscosity for a size mixing is needed. He also expressed the opinion that materials for sizing should be bought on a standard sample.

There being no further discussion, Chairman Coburn thanked the speakers on behalf of the association and those present and declared the meeting adjourned.

The Convention Banquet

OVER 400 members and guests attended the banquet held on Wednesday evening. Good fellowship overshadowed speechmaking as the formal part of the program was limited to President Amory's address and to a rather brief and informal talk by Samuel Vauclain, president of the Baldwin Locomotive Works.

KEEP COTTON HERE

"We produce 69 per cent. of the total supply and then sell one-half to the other fellow to make up and ship the goods back to the United States. It seems to be the best thing for the textile business not to sell cotton to the other fellow to keep him busy. We ought to go into foreign lands and find a market to increase our cotton goods business, and make the chap who speculates in cotton leave it alone."—*From Samuel Vauclain's Address at Banquet.*

Mr. Amory discussed the present unsatisfactory conditions in the textile industry, particularly in New England, bringing out the fact that the production of cotton goods per capita is far less today than it was 10 years ago. He spoke particularly of the instability of cotton prices in recent years and the unsettling effect which violent changes have had upon retail buying.

Taking up the matter of curtailment, Mr. Amory predicted that this is bound to spread for a while and that there is certain to be much actual stopping of machinery this summer. He remarked that an encouraging feature of the depression through which the industry has been passing has been the fact that New England mills have been merchandised through this trying period rather better than mills elsewhere in the country. Mr. Amory's address is printed elsewhere in this issue.

At the conclusion of Mr. Amory's address, an electric sign bearing the slogan "New England Made" was flashed above the speakers' table as a reminder of the key-note expressed in his address at the afternoon session.

Mr. Vauclain's Address

Mr. Vauclain, introduced by the president as one of the hardest workers in the United States, imparted a genial note of optimism into the banquet proceedings. He assured the New England manufacturers that they would prosper and would find a way out of their present dilemma. He reviewed briefly the situation in the countries of Europe, emphasizing the fact that we are the happiest and most prosperous nation. Referring to the unemployment in England, he stated that that country is selling products at prices entirely unprofitable to them, and he struck a responsive chord in his hearers by remarking that he would favor a tariff "so high that the sun would not shine in New York City until 10 o'clock in the morning." "It is our right," he stated, "to have a tariff act that will insure New England workmen a full week's work." He discussed the chaos in Germany, the struggle against unemployment in Belgium and dwelt at some length upon the way in which Poland particularly is working out its problems. He said he had no fears for Poland but that five years ago it was in a much worse condition than the cotton industry of New England. "Have courage," he said, "your time will come."

Referring to Mr. Amory's remark on the short supply of cotton Mr. Vauclain stated that we grow 69% of the world's cotton in this country, but sell half of it to other countries to be manufactured and sent back here as finished goods. He added that we ought not let this cotton go out of our country but instead should find foreign outlets for American goods made from it.

He urged each manufacturer to think of his neighbor and of his neighbor's business and to help wherever possible as in time they would be repaid for it. He stated that he never permitted a purchasing agent to buy from a man selling at a loss as this was bad business; instead he insisted on his buying from a man trying to make a profit. "If you help to make general business profitable you will prosper yourself," was his concluding thought.

At Speaker's Table

Those seated at the speaker's table included President Amory, Treasurer W. I. Bullard, Secretary H. C. Meserve, Samuel Vauclain, Russell B. Lowe, Albert F. Bemis, Magnus W. Alexander, Gerritt Fort, George B. Haven, Arthur H. Lowe, Lt. Col. W. C. Sweeney, S. H. Thompson, E. N. Bartlett, and James McNaughton.

Organizations entertaining guests at tables at the banquet included Pacific Mills, Lockwood Greene & Co., Amory Browne & Co., Ipswich Mills, Lawrence & Co., Hill Mfg. Co., Draper Corp., Potomska Mills Corp., Anderson Clayton & Co., General Electric Co., American Printing Co.,

Samuel M. Vauclain, President, Baldwin Locomotive Works, Who Spoke at Banquet of N. A. C. M. Convention.

Butler Mills, Crompton & Knowles Loom Works, H. W. Butterworth & Sons Co., Stephen Weld & Co., Day & Zimmerman, Inc., National Aniline & Chemical Co., Textile-Finishing Machinery Co., Whitin Machine Works, Fales & Jenks, Wamsutta Mills, Du Pont Co., Stafford Co., and Harmony Mills.

The Theatre Party

OVER one hundred of the orchestra seats at the Wilbur Theatre Thursday evening were occupied by the theatre party of the National Association that witnessed the production of the musical comedy "The Gingham Girl." A large number of those who attended were accompanied by their ladies. A considerable number delayed registering for the theatre party until they reached the convention and were obliged to accept such seats as were available, because reservations of the seats originally selected by Secretary Meserve expired the Saturday before the convention.

Julia Sanderson, Star of The Gingham Girl.

As it is known to many that the "Gingham Girl" exploits in various ways ginghams made by the Lancaster Mills and Parkhill Mfg. Co., and sold through Amory, Browne & Co., of which firm President Amory of the association is a partner, it should be stated that Mr. Amory had nothing whatever to do with the selection of this musical show for the theatre party, and in fact, protested at such selection on the ground that it might look as though he were seeking free advertising for his firm. His protest was overruled by Secretary Meserve and the Board of Government, as they believed that the title of the "Gingham Girl" was particularly apropos for the theatre party of a cotton manufacturers' association, and their

opinions were confirmed by practically all who attended the show.

Ginghams can hardly be said to dominate the "Gingham Girl" as the star, Julia Sanderson, is the only one of the company who is dressed in gingham, and the only other use of this type of fabric is for the drop curtain that is used between acts, the latter featuring the Kalburnie and Glen Roy ginghams sold through Amory, Browne & Co. Several other companies are touring the country with the same show thus affording a large amount of publicity for these particular lines of ginghams and at the same time tending to increase the reputation of all domestic ginghams.

Many of those members and guests of the association who attended the theatre party made up small groups that dined at the Copley Plaza or other Boston hostelries before and after the show, and all of those who took advantage of such opportunities for social intercourse considered this feature of the convention an attractive and enjoyable innovation.

Convention Notes

WHEN as conservative a New England organization as the National Association of Cotton Manufacturers can so radically change its constitution and by-laws and its convention program as has been done within a year it affords substantial reason for the belief that individual members of the Association will not be averse to making as radical changes in their manufacturing and merchandising methods when convinced that these are advisable or necessary to conserve the future of their businesses.

RAILROADS AND TRUCKS

"You may well consider whether it is the duty of the manufacturer, in New England or elsewhere, not only to use the railroads in the transportation of his goods to the greatest extent consistent with good business methods, but to use his voice and influence in procuring laws which will require motor transportation to pay its fair share of the cost of constructing and maintaining highways and also to place common carrier motor vehicles under the same forms of regulation that the public has decreed are wise in respect of the railroads."—*From Gerritt Fort's Paper on "The Railroads and the Industry."*

Veteran members of the National Association are likely to be more appreciative of what this means than the latest generation of manufacturers who are unacquainted with the vital part that precedent formerly played in Association work. Surely there is hope for the future of New England cotton manufacturing now that its most representative organization has turned its back upon precedent.

Many of the veteran members of the Association remarked that this week's convention seemed more like a fall than a spring meeting, because of the change in the constitution and by-laws that has transferred the election of officers to the fall meeting. Strange as it may seem, however, to those who recall how fixedly New Englanders have been accustomed to cling to things that are old, no regrets were expressed at the change.

Undoubtedly poor business had something to do with stimulating an attendance of over 500 at this convention, and the interesting character of the program was also partially responsible, but in larger part it, and similar large attendance at conventions of the last two years, are a reflection of the increased size of the industry. A factor that is also partly responsible is the increased number of local organizations of manufacturers throughout New England. It is doubtful if there was ever a period in the history of the industry when there was more general acquaintance among its individual members.

It has often been stated in these columns that one of the chief values of such gatherings of manufacturers is in the opportunity that they afford manufacturers to increase their acquaintances in the industry, and in the benefits that may accrue from discussion of their manufacturing and business problems outside of the formal meetings. It is a rather long and trying step for many to take these personal discussions into formal meetings, but it has been taken by many and there has been a marked increase in the number who take part in discussions of the latter character.

An interesting side show at the convention was an exhibit of domestic and imported wash goods shown by Jordan, Marsh Co., in the foyer of the hotel. This featured novelty fabrics which have been particularly good sellers this season and it was stated by President Amory at the Wednesday afternoon session that many of these were made in New England. Among the domestic fabrics were printed voiles, tissue ginghams with Normandy dots, silk and cotton crepe, ratines and other novelties. The foreign fabrics, from Rodier, included embroidered crepes, black-printed fabrics, ratines and voiles. One imported voile was interesting in that the eyelet embroidery was done in this country.

The steady growth of the technical department of the association during its short existence is evidenced by the number and variety of problems on which investigations have been conducted, as outlined in the secretary's report.

A luncheon of the Boston Chamber of Commerce was held on Thursday and many members of the association availed themselves of the opportunity to be present.

President Amory's address at the opening session contained the statement that the association's exhibit of ancient and modern cottons last fall had helped to sell a great many fine cotton goods. After reading this statement Mr. Amory hastened to add that he realized that many who are running mills cannot believe that any are selling just now.

Mr. Amory remarked that an estimate prepared by W. S. Pepperell, assistant treasurer of the Warren Mfg. Co., placed the imports of fine goods into this country as representing the product of 35,000 fine goods looms — or in other words that on account of these imports 35,000 looms in this country are idle. In this connection it is interesting to note that TEXTILE WORLD's estimate, based on the maximum imports of December, places the imports as representing the product of 45,000 fine goods looms.

Mr. Amory brought out the interesting fact that, on studying recent imports, he had noticed the minute quantity of vat-dyed goods coming into this country. He stated that it was safe to assume that the fastness of imported fabrics is inferior to that of those made here. The only reason he could ascribe for the continued demand for these goods was the selling value that the word "imported" has acquired. It was this thought which led him to the suggestion that members of the association capitalize the selling value of "New-England-Made" and the reputation for quality which New England goods have always enjoyed.

An invitation to members of the association to attend the convention of the American Cotton Manufacturers Association at Atlantic City, May 27 and 28 was contained in a letter from Philip Wentworth of the National Ring Traveler Co., chairman of the New England committee at that convention, read at the opening session.

Slogan-making being one of the features of the convention, Secretary Meserve took occasion in his paper on "The Founding and Growth of Industrial Centers" to quote a slogan used in pre-Revolutionary days, "Home-made or nothing." He remarked that he presumed that inhabitants of communities observing that slogan must have worn home-made goods or—nothing!

That was a clever idea of the membership committee (or whoever was responsible for it) in separating the sheep from the goats by identifying non-members of the association with pink cards on their badges instead of the white cards furnished to members. This adaptation of the selective card system left the membership committee with few legitimate excuses for not producing results.

The identifying of both members and guests by name-plates attached to convention badges has been rendered a permanent necessity now that attendance at these conventions regularly averages more than 500. It has been suggested by certain association members identified with the allied trades that a set of standard color marks be adopted for the cards of active members indicating that they are in the market for certain kinds of machinery and supplies, although the former admit that the use of such markings under present business conditions might make the non-member the center of a mob scene; to which one of the active members replied that there would have been no mobbing at this week's convention, because buying status was accurately indicated by the absence of the suggested signals. In fact, they are probably quite as unnecessary as anti- or pro-Volstead signals.

If President Amory had reserved his suggestion of a "New England Made" trade-mark and slogan for the climax of his banquet address, instead of presenting the idea at the opening session, the electric sign bearing this slogan, that was flashed at the close of his banquet address, would have made a fitting climax and a more vivid and lasting impression upon his hearers. However, "New England Made" cannot be "put over" so easily, and it is possible that the failure of the electric sign to arouse enthusiasm may have served to impress those present with the real size of the job of popularizing "New England Made" cotton manufactures.

INDUSTRIAL RELATIONS

"The close relation between employer and employe is gone, insofar as personal contact is concerned, and cannot return; but notwithstanding all this, human sympathy remains and is dispensed in greater measure than ever before, and communities are lifted onto higher planes by the effort of the men of vision of today. Each nationality with us must work out its own salvation. With the opportunity afforded, to which our large industries contribute so much, they will be lifted to a level with our own people and their own national tendencies will be lost by intermingling with us.—*From S. H. Thompson's Paper on "The Community and the Industry."*

Now that both capital and labor involved in the production of fine count cloths have petitioned President Coolidge to take the legal steps looking toward the exercise of the flexible provisions of the tariff on cotton cloth duties, it looks as though the trade might learn in the comparatively near future whether it must

continue to suffer from this character of unfair competition, or whether real protection can be obtained through the operation of these flexible provisions. That the tariff is inadequate to cover existing differences in selling prices of English and domestic cotton fabrics is most emphatically demonstrated by the enormous importations of the former goods during the last six months, but that the flex-

W. Frank Shove,
Board of Government, N. A. C. M.

ible provisions of the tariff can afford much relief under such conditions is not at all certain. Neither is it certain that it can be proved that English cotton manufacturers are "dumping" in the legal sense of that word. Even if "dumping" can be proved there remains to importers of foreign cloths the advantage in valuation for dutiable purposes of a continued depreciation in British currency of approximately 20%, and of a much greater depreciation in other foreign currencies. There also remains to importers the benefit of certain blunders made in the wording, or interpretation, of the cotton goods schedules of the tariff; a specific instance is the 5% additional duty that was supposed to be levied on box-loom goods, but that the Customs Court claims to be nullified. "Cloths made on drop-box looms" are specified and the court accepts the importers' claim that all box-loom fabrics are being produced in England on circular box-looms." We particularize in this connection for the purpose of showing that the pathway toward adequate tariff protection for fine count cotton cloths is not straight and broad.

The majority of members and guests of the association came to the convention hoping against hope that certain of the speakers would present something of a tangible character that would show the way out of the slough of business despond, or would forecast in a convincing manner a reasonably early improvement in business. They found exactly what they were looking for in the banquet addresses of President Amory and of President Samuel M. Vauclain of the Baldwin Locomotive Works, the former holding out specific hope for the future of textile business and the latter for the future of general business.

In view of the space that has been devoted in the daily and trade press to the decadence of the New England cotton industry, and the moving of its mills or its capital investment to southern states, it may be surprising to learn that there was little serious discussion of the subject at the convention either in the formal meetings, or in the lobby of the Copley-Plaza among members. This does not mean that the subject is a dead issue by any means, but may be partially due to the fact that business is so dead both North and South that mill expansion or rebuilding involving large sums of money is not being considered. One phase of the subject that was commented upon by many was the probability that, if poor business lasted much longer, some real bargains in cotton mill properties would be available both North and South. More northern plants will go South, or will be expanded in southern states rather than in New England, and the directors of these plants are merely awaiting a favorable opportunity. Both President Amory and Secretary Meserve, however, are absolutely correct in their belief that the major portion of the New England industry will remain in

A. W. Dimick, Board of Directors,
N. A. C. M.

New England, and will adapt its production to lines that are least competitive with southern products. It is becoming realized by the officials of most New England mills that to retain or assume a commanding position in the market they must keep their equipment and manufacturing methods up-to-date and must adopt modern methods of merchandising.

All of the officers and directors of the association attended some or all of the sessions, with the exception of Vice-president Nathan Durfee of Fall River, and Directors R. H. I. Goddard, of Providence, R. I., and Andrew S. Webb of Philadelphia. W. Frank Shove, of Fall River, one of the three former presidents who are members ex-officio of the Board of Government had expected to be present, but was prevented at the last moment.

The usual private meeting of sustaining members of the association was held in the salon of the Copley-Plaza Thursday afternoon during the progress of the technical session. An unusually large attendance was stimulated by President Amory's notice that the subject of cotton goods imports and the need of increased tariff protection would be discussed. No report of the meeting was made public, but it is understood that those in attendance were practically unanimous in favoring petitioning President Coolidge to authorize an investigation by the Tariff Commission and grant relief under the flexible provisions of the tariff act if warranted by the commission's report.

At the Board of Government luncheon Thursday, only routine matters were discussed but names of 16 new members were presented and elected, these including two life members.

It was learned at the convention that Walwin Barr has resigned from F. U. Stearns & Co. to accept a position with the American Bleached Goods Co., New York.

Only six of the former presidents of the organization were able to attend the convention, including Russell B. Lowe, Albert Farwell Bemis, Al-

Andrew S. Webb, Board of Directors,
N. A. C. M.

bert Greene Duncan, Edwin Farnham Greene, Franklin W. Hobbs, and W. D. Hartshorne. Messrs. Hobbs and Greene were able to attend only the banquet, but the other ex-presidents attended most of the sessions.

The absence of former president Charles T. Plunkett, president of the Berkshire Mfg. Co. North Adams, Mass., is accounted for by the fact that he returned only recently from a visit of several months in the South. Both Mr. Plunkett and Gilbert T. Thompson, treasurer of the same company, have been in rather poor health until recently and feel that they can take little time away from business.

Former President James R. McColl, president of the Lorraine Mfg. Co., Pawtucket, R. I., is somewhere on his way around the world, thus accounting for his absence.

Among other living ex-presidents who were unable to be present were Walter E. Parker, agent emeritus of the Pacific Mills, Lawrence, Mass., Arthur H. Lowe, treasurer of the Parkhill Mfg. Co., Fitchburg, Mass., Charles H. Fish, general manager, Imperial Cotton Mills Co., Los Angeles, Calif.; and W. Frank Shove, treasurer of the Pocasset Mfg. Co., Fall River, Mass.

James Thompson, Board of Directors,
N. A. C. M.

The membership committee which acted as the reception committee for the convention, and is headed by Treasurer W. Irving Bullard, of the association, has done very effective work recently and has added very largely to the number of active and associate members. It is anticipated that its novel method of spotting non-members at the convention will be productive of good results.

The resolutions committee headed by C. F. Broughton, treasurer of the Wamsutta Mills, New Bedford, Mass., and including Philip Dana, W. F. More, and W. S. Pepperell, received many congratulations on the large number of important subjects effectively covered. Its resolution on the tariff was direct and comprehensive, but its resolutions on taxation and truth-in-fabric legislation struck some members as being unnecessarily diplomatic. For instance, the demand for taxation reduction failed to endorse the Mellon program; the truth-in-fabric resolution denounced the French-Capper bill, but failed either to denounce or endorse the pending Rogers-Lodge bill. The committee's diplomacy was also reflected in its advocacy of a compaign for the popularizing of American made fabrics, rather than for the more sectional "New England Made" proposed by President Amory.

The Southern New England Textile Club, the Boston Textile Club, the Blackstone Valley Mills Association, the Eastern Connecticut Mills Association, and several other sectional bodies of New England textile manufacturers, were represented at

the convention in most instances by their officers and by large delegations of their membership.

W. S. Pepperell, secretary of the Southern New England Textile Club, received many congratulations upon the effective work performed by him in preparing the brief upon which the cotton goods tariff resolution was based. The case for the domestic cotton industry may need further development by the U. S. Tariff Commission, but the industry's need of more adequate protection for cotton cloths has been amply demonstrated by Mr. Pepperell.

Among the few southern manufacturers present at the convention was George Fish, agent of the Fort Mill (S. C.) Mfg. Co. While business matters were primarily responsible for his northern visit he was careful to time the latter so that he could renew his acquaintance with his many friends among northern manufacturers.

Charles H. Potter, general superintendent of the Montreal Cottons, Ltd., Valleyfield, Quebec, was one of the few Canadian manufacturers present at the convention.

Committee Reports at N. A. C. M. Convention

Broad Scope of Association's Work During Last Six Months Indicated—Committee Reports Cover Such Matters as Foreign Trade, Rates and Transportation, Tariff and Taxation, the Exhibition, Statistics, Industrial Relations, Membership and Technical—Comprehensive Work Undertaken

REPORTS of unusual scope and interest were presented by the various committees of the National Association of Cotton Manufacturers at the afternoon session on Wednesday of the convention in Boston this week. The reports are a vivid summary of the association's work during the last six months and in several instances valuable data has been compiled. The contacts of these various committees with other bodies has been helpful in developing a further spirit of cooperation in matters wherein the cotton industry touches upon other fields. The committee members have given freely of their time to push the association's work along those lines with which each of the several committees is concerned. The reports referred to follow in full.

Report of Technical Committee

IN our last report of the Research Committee an outline was given of the general plan of what the committee proposed and hoped to accomplish. Since this report was submitted, the Board of Government decided that the work of the committee could be more properly described by a change of name and on January 1st the Research Department became the Technical Department and the Research Committee became the Technical Committee. This change in title affected only one part of the committee's activities; that is, the organization of cooperative mill research, it being the feeling of the committee that in the future any work of this nature should be proposed by the members of the Association rather than by the Technical Committee.

The Technical Secretary has kept in touch with as many mills as possible, both to keep the mills informed of what has been done by the different laboratories engaged in textile investigations and to follow the trend of the problems that the mills are interested in.

The Technical Department has continued its co-operation with the Federal Specifications Board on Textiles; Committee D-13 of the American Society for Testing Materials, the Division of Simplified Practice and the Bureau of Standards. The department has been able to function to the benefit of the members by working with these various outside organizations and it is believed that the work in this connection is the most valuable that the department has been able to render the Association.

The department has contributed to the regular monthly Bulletin and the Special Bulletin to sustaining members, with the result that a large number of inquiries have been made for further details on matters which are too long to be treated in more than a brief manner in the Bulletin.

The number of requests for information and investigations for individual members has increased, indicating that the technical services offered by the Association are finding a wider field of application.

Respectfully submitted,

Fessenden S. Blanchard, Chairman
Harry L. Bailey
James E. Coburn
W. O. Jelleme
Albert D. Milliken
John A. Perkins
Albert R. Pierce
J. Foster Smith
Winthrop E. Steinbach
William E. Winchester.

Report of Foreign Trade Committee

THE most outstanding feature in the foreign trade situation is the probable settlement of some parts of the reparations problem, which will probably bring with it the recovery of Europe economically. Although Dawes' report is not accepted and in being it has created confidence.

Those in distress first seek the solution of their food problems, second their clothing problems, and third their housing problems. The European situation is passing into the second phase of reconstruction. This is particularly true in the wool business, where in spite of the depressed conditions in the United States, the European demands are more than sufficient to continue the advance in price of this commodity.

The demand for cotton clothing is more likely to develop later than that for wool, as the economic condition improves in the more temperate zones, and as the housing problem is considered, cotton goods are greatly needed in the homes.

Owing to the great fluctuations in exchange there has been considerable selling of goods based on cost rather than replacement, and this dumping has been frequently used in advertising to draw a crowd, overemphasizing the volume of such transactions.

National economies and stabilizing of budgets will be a great help in removing these depressing influences from the trade.

It is interesting to note that the exports of cotton goods in 1923 are approximately the same as pre-war, although only about half of the period immediately after the war. The value of the goods per yard, however, is considerably higher, and it is quite evident that what we have lost in grey goods exports we have made up through the increase in finished goods.

This evolution is probably due partially to the increase in value of cotton, increasing competition of low end goods, and the increased consumption in foreign mills of lower grade cottons, particularly those of China and India.

Some people may secure comfort from the fact that our cotton goods exports are about equal to those of 1913, while those of the British are only slightly over 60% of pre-war.

John S. Lawrence, Chairman, Committee on Foreign Trade

Respectfully submitted,

John S. Lawrence, Chairman
Nathaniel F. Ayer
Robert F. Herrick, Jr.
Joseph K. Milliken
George Nichols

Report on Tariff and Taxation

THE Tariff and Taxation Committee has continued to observe the functioning of the tariff bill now in effect. It has cooperated with the General Tariff Committee and is considering some of the operations of the law which were not anticipated when it was passed.

The committee has been kept informed through the secretary's office of the large imports of cotton goods and this information is now in the hands of the General Tariff Committee.

Respectfully submitted.

John Skinner, Chairman
J. Arthur Atwood
Albert Greene Duncan
Russell H. Leonard
Andrew G. Pierce, Jr.
Frank E. Richmond
John E. Rousmaniere

Report on Rates and Transportation

TRANSPORTATION conditions in the Northeast continue to be a source of considerable apprehension, as viewed by your Committee on Rates and Transportation.

Railroad service, which has not yet reached that pinnacle of perfection that most manufacturing industries require at times of lean profits, and the unsettled state of freight rate schedules, due to a contemplated reorganization of the entire rate struc-

ure of the country favorable to agricultural products and basic materials, constitute two prominent problems.

Of these two items, it is difficult to determine which is of the greater importance in merchandising the products of the cotton manufacturing industry of the Northeast. An upward trend in freight rates to a level which would prevent merchandising in the usual flow, would be most injurious. An inefficient railroad service which compels the necessary use of other means of transportation, deprives the rail carriers of a revenue which they may be forced to regain through rate advances or some other form of service charges.

Efficient rail service is obtainable only through a most complete co-operation between shippers and carriers. Inadequate rail service reflects the use of other forms of transportation competitive with the railroads, reduces their revenue and ultimately produces rate advances. The railroads establish train service intended to adequately move the tonnage offering. Railroad officials do not know of shippers' individual service requirements until advised of them, and frequent and persistent handling with the proper officials result in constructive improvements and general benefits.

Your Committee considers that New England is more acutely interested in a sound and proper solution of these problems than any other northern section.

Long transit periods for cotton and supplies increase production costs. Prompt transportation of finished products influences sales, and time saved in the transportation of foodstuffs to New England should reduce the cost of living in this district.

Your Committee, therefore, suggests that members co-operate with the carriers to the fullest extent, acquaint railroad officials with their service requirements and by improving the general service, prevent as much as possible any necessity for increased transportation costs.

The contemplated reorganization of the entire freight rate structure of the country favorable to agricultural products and basic commodities is viewed as an intent on the part of the Federal Government and the National Congress to increase freight rates on the products of manufacture.

No basis for this contemplated reorganization has yet been defined. Your Committee sees in it, however, a most serious possibility confronting our industry in New England.

A general reduction in freight rates on cotton and coal, our two largest basic commodities, if in the same amount per hundred pounds, would not affect relative values at competitive points of consumption.

A general advance in freight rates on products of manufacture could not be so easily brought about. The measure of advance would very naturally be guided by the financial condition of the railroads by districts.

Rate advances within, to, or from the Northeast, greater in percentage or in cents per hundred pounds than advances within, to, or from competitive districts of the South to common markets in the Middle Atlantic and Western States, would spread rate relationship disastrously for New England.

Your Committee feels that the seriousness of the freight rate situation confronting the cotton manufacturing industry of New England is not fully recognized by the rail carriers or possibly by some of our member manufacturers. The relationship of freight rates to cotton manufacturing is sometimes very erroneously interpreted in cents per yard of cloth. The true relationship of transportation costs is in merchandising and this is where rate relationship between competitive manufacturing districts to common markets should be preserved.

In relation to the general subject of freight rate relationships on cotton mill products, your Committee on Rates and Transportation was interested and instrumental in the formation of a conference, composed of transportation and traffic representatives of various interested factors in the cotton manufacturing industry in the Northeast.

The purpose of this conference is to centralize for periodical discussion, proposals for rate reductions by shippers and for rate advances or readjustments by the carriers, which it is felt may lead to injury to the cotton manufacturing industry, the discussion of traffic subjects primarily concerning our industry and ultimately to direct concerted action in opposition to any proposal for freight rate advances considered injurious to the welfare of the cotton manufacturing industry in this section.

Your Committee on Rates and Transportation will welcome information from our members concerning

D. L. Taylor, Chairman Committee on Rates and Transportation

proposals for freight rate reductions deemed necessary or action on the part of the carriers in advancing a freight rate deemed injurious.

Respectfully submitted,
D. L. TAYLOR, Chairman
H. D. ARNOLD
A. S. RICE
H. M. TARR.

Report of Exhibition Committee

AT the meeting of the Board of Government held Friday, June 1, 1923, President Amory announced his committees for the ensuing year. At this time the President appointed the following Exhibition Committee: Harold C. Whitman, Chairman, Morgan Butler, John A. Sweetser. The committee was enlarged later by the appointment of Bertram H. Borden, Charles B. Chase, Lawrence M. Keeler and William E. Winchester.

This committee was authorized to prepare an exhibit in connection with the International Textile Exposition at Mechanics Building, Boston, October 29 to November 3. The committee carefully considered the matter and presented their conclusions in a letter to a number of the sustaining members of the Association. In response to this letter 45 replied and $5,100 was secured. The committee had stated that the plan required $6,500 to carry it through. The exhibition was generally regarded as a success and was widely commented upon in the press. While the committee did not exceed its estimate, you will note that there is a deficit between that estimate and the amount received. We desire your active cooperation in securing the balance necessary to indemnify the committee.

The Travelling Exhibit

An immediate feature growing out of this exhibit was a number of requests from all parts of the country that a small travelling exhibit be arranged. The matter was undertaken in the secretary's office and the response was so great that we had difficulty in choosing from the large number of high-grade stores those to whom we would loan the exhibit. In our selection we considered the locality of the concern as well as the standing and have so arranged the schedule that nearly all sections of the country are covered and no two stores in the same locality will display it. We have also considered the time most suitable for each locality and therefore started the exhibit after Christmas in Texas because their season begins so early. From there it has traveled through the southern states to Boston and from Boston it has just gone West along the northern route. The matter of time required for transit from one place to another had to be taken into account and the routing was so planned that the proper time would be allowed for travel, but not so much that the exhibit would be idle.

Valuable Publicity Obtained

So many requests have been received that it is possible to keep this exhibit on the road for nearly a year longer, although the exhibit has now been on the road some four months and is booked up to the December holidays. The retail stores in the centers from Texas to Massachusetts, covering a large part of the central portion of the country have been enthusiastic in their praise. They have carried large advertisements concerning the exhibit, arranged photographs, and generally cooperated in a splendid way to make the exhibition a success.

The exhibit is made in connection with domestic cottons carried by the stores themselves. There is a large placard which says, "This exhibition was organized by The National Association of Cotton Manufacturers in the interests of finer and more beautiful Cotton Goods made in New England Mills." The advertisements in the papers also carry this same statement. We have selected a few quotations.

Neiman-Marcus Co., Dallas

"Be assured, Mr. Meserve, that we greatly appreciate your courtesy in permitting us to use the exhibit, which we feel sure was fruitful both for your association and for us.

"Among the many interested visitors to our cotton exhibit was Miss Anderson, who is in charge of the Household Arts Department of the College of Industrial Arts, Denton, Texas, a very important institution located about sixty miles from Dallas. I believe that they have some six or seven thousand students at this college."

Eakin & Coombs, Manhattan, Kan.

"This exhibit attracted an unusual amount of attention as there was a crowd in front of the window practically all the time. That the people of Manhattan and our college were interested is shown by the number of people who came down to see the display, and by the numerous inquiries we had in regard to the exhibit.

"In regard to the effect this exhibit had on our sales, will say that this was VERY NOTICEABLE IN OUR PIECE GOODS DEPARTMENT from the first, and from an ADVERTISING STANDPOINT, I do not believe I have ever witnessed a BETTER PROPOSITION and I have been in the display business for TWENTY YEARS.

"As a whole I feel that it was a wonderful success, and will do an UNLIMITED AMOUNT OF GOOD IN INCREASING THE PIECE GOODS BUSINESS, as well as the benefit derived from it from an educational standpoint. I consider it a good idea, well executed."

Kaufman-Straus Co., Louisville

"We are taking this occasion to offer through you to The National Association our sincere thanks for sending to us the exhibition of ANCIENT AND MODERN COTTON."

(Photographs and Advertisements were enclosed.)

"At the outset of the exposition, we issued a formal invitation to all the public and high schools and in response hundreds and hundreds of the

students of the schools came in to witness the display. Most of the students brought with them pads and pencils with which to make notes so that they would be equipped to write essays on the subject. A little later, the newspapers here will publish the essay which in the opinion of the judges appointed for the purpose, is proven to be the best."

Frank R. Jelleff, Inc., Washington

"As to the outstanding benefits, we think it brought to the favorable attention of those who saw it, the fact that a cotton frock is after all the frock for a Washington summer. There have been seasons when our sales of cotton frocks fell off in favor of wash silks of different types, and we are sure that this exhibition was very helpful in demonstrating that almost throughout the history of civilization, it has been found that there is no superior to the cotton frock for warm weather wear."

The reception which this exhibit has received everywhere and the attention called to the New England mills is bound to have its effect. So far as your committee knows, this is the first time that anything of this kind has been done by the National Association and the success attending this exhibition may suggest further ideas for securing proper publicity.

Your attention is particularly called to the photographs, advertisements and comments displayed in the lobby near the secretary's desk.

Respectfully submitted,

Harold C. Whitman, Chairman,
Bertram H. Borden,
Morgan Butler,
Charles B. Chase,
Lawrence M. Keeler,
John A. Sweetser,
William E. Winchester.

Report of Statistical Committee

THE Statistical Committee begs to submit the following report which it is hoped will bear upon the foremost questions in our industry at the present time and which are said to be responsible for our present business slump.

These questions are:

1. Is the machinery available in our industry out of proportion to the population?

2. Are our stocks held by the mills excessive?

Table 1 leads the Statistical Committee to the conclusion that the increase of machinery in the United States has been maintained at a normal rate.

Table 2 is presented for your study, but no conclusions are drawn from it. The ratio of imported goods to the normal importation of 1914 would seem to be quite large.

The third presentation, "Mechanical Fabrics," is of interest to tire manufacturers in its relation to cotton consumption.

The fourth table represents the merchandise held by these mills in the cities of Fall River and New Bedford as of December 31.

The Statistical Committee has attempted to draw no startling conclusions from these figures, but they are presented with the hope that they may be studied by mill treasurers and purchasers of cotton fabrics and that they may draw their own personal conclusions from them.

Respectfully submitted,

Russell B. Lowe, Chairman,
Albert Farwell Bemis,
Albert Greene Duncan,
Ward Thoron.

TABLE I—POPULATION AND MACHINERY

Year	Population	Cotton spinning spindles in place	% of spindles to population	Cotton looms	% of looms to population	Total domestic production goods over 12" in width (sq. yds.)
1879 ...	48,806,000	†10,653,435	21.9	225,759	.462	‡2,273,278,025
1889 ...	61,289,000	14,384,180	23.5	324,866	.530	3,004,320,473
1899 ...	74,798,612	19,472,232	26.0	455,752	.610	4,523,430,616
1904 ...	82,601,384	23,687,495	28.7	546,260	.661	5,110,308,812
1909 ...	90,691,354	28,573,435	31.5	638,067	.703	6,348,568,593
1914 ...	97,927,516	32,744,012	33.5	676,061	.691	6,813,540,681
1919 ...	105,003,065	35,443,156	33.8	697,142	.665	6,317,397,984
1921 ...	107,833,284	36,617,584	34.6	‖705,000	.653	6,723,556,963
1922 ...	109,248,393	36,945,554	33.8	‖710,000	.649	.....
1923 ...	110,663,502	37,408,689	33.8	‖725,000	.725	.....

TABLE II—IMPORTS—PRODUCTION—CONSUMPTION

Year	Cotton goods imports (sq. yds.)	Relation of imports to population (yds. per person)	Cotton goods exports (sq. yds.)¶	Net domestic production plus imports minus exports (sq. yds.)	Relation of net domestic production to population equals U. S. consumption (yds. per person)
1879	14,303,036	.293	131,627,222	‡2,155,953,839	44.2
1889	31,138,204	.507	120,302,818	2,915,155,859	47.6
1899	61,846,781	.827	418,426,157	4,166,851,240	55.7
1904	44,755,238	.542	434,989,686	4,720,074,364	57.1
1909	73,803,398	.815	380,521,971	6,061,850,020	66.9
1914	62,272,013	.637	326,477,889	6,549,334,805	67.0
1919	49,753,481	.474	683,045,326	5,684,106,139	54.1
1921	106,308,379	.987	551,512,942	6,278,352,400	58.2
1922	*141,500,000	1.295	587,492,532	.....	.....
1923	*215,500,000	1.950	464,293,759	.....	.....
1924	Jan. and Feb.	2.090	.....	.....	.....

*From September 21, 1922 to March 31, 1923 cloth imports were reported in pounds only. For the periods September 21 to March 31, 1922 and January 1 to March 31, 1923 pounds were converted into square yards on the basis of the average yards per pound of cloth imports ffrom April 1 to December 31, 1923. The conversion was at the following rate: Unbleached, 6.087; bleached, 6.601; colored, 5.464.

†Cotton spindles in cotton mills only.

‡Linear yards.

§1879 production was collected in linear yards.

‖Estimated.

¶Linear yards previous to 1922.

TABLE III—MECHANICAL FABRICS (Ducks, Tire Fabrics and Canvas)

Year	Total production (sq. yds.)	Yards per capita	Year	Total production (sq. yds.)	Yards per capita
1889	55,192,538	.90			
1899	129,234,076	1.73	1914	251,367,711	2.57
1904	122,601,212	1.48	1919	385,090,402	3.67
1909	162,476,322	1.79	1921	232,498,793	2.16

TABLE IV

NEW BEDFORD AND FALL RIVER COTTON MILLS RAW MATERIAL, MDSE, ETC.

	Number of mills	Dec., 1920	Dec., 1921	Dec., 1922	Dec., 1923
Fall River.....	37	$12,822,752	$14,042,868	$13,397,203	$14,525,565
New Bedford.....	29	60,600,804	42,088,298	44,781,277	36,661,683
Total	66	$73,423,556	$56,131,166	$58,178,480	$51,187,248

Report on Industrial Relations

THE interest manifested in the program presented by your committee at the fall meeting was of great encouragement and confirmed the committee in the belief that when the opportune time should arrive, much might be done by the Association along the line of industrial relations. During the past six months mills engaged in this work have further successfully developed the plans under which they are working.

In view of this fact, it did not seem necessary for your committee to bring the subject again to your attention through the program but to wait for still further developments. The committee again renews its willingness to cooperate and to lend its assistance when called upon.

A considerable amount of information with regard to successful working plans has been gathered in the office of the secretary and members are invited to consult his office at any time.

The conditions which have obtained during the last six months have afforded a splendid test for all plans now working and the experiences resulting will undoubtedly form a valuable record which may be given at a later meeting.

Still holding to the fundamentals mentioned in our previous report; namely, to put the whole question upon a practical working basis with commonsense as the controlling factor, your committee again suggests the importance of giving careful consideration to the whole field of industrial relations.

Respectfully submitted,

Russell H. Leonard, Chairman
Fessenden H. Blanchard
C. F. Broughton
G. Edward Buxton, Jr.
George D. Flynn, Jr.
John A. Sweetser.

Report of Membership Committee

THE Membership Committee has continued its interest in the development of the membership of the Association and has been more or less instrumental in securing 22 new members, 10 active, 8 associate, and 4 sustaining, since the fall meeting.

Your committee has extended invitations to a number of prospects suggested by our own members and many of those invited are present at this meeting. We desire earnestly your cooperation to make our guests feel at home and to impress upon them the value of membership in this Association. The committee believes that it is really doing a great kindness to the rising young men of the industry to thus welcome them to our Association as members.

Whatever the committee may have done or may do, it still feels that there are a number of mills and individuals connected with our industry who ought to become members, and suggests that at no time does our Association function so helpfully as when manufacturing and sales conditions are not so good. The cooperation of the members of our Association in securing new members is therefore requested.

In order that the committee might function more broadly, the President has appointed the members of the Membership Committee as a Reception Committee for this meeting.

Respectfully submitted,

W. Irving Bullard, Chairman,
George A. Boyd,
James A. Burke,
H. M. Coulter,
Philip Dana,
Nathan Durfee,
Charles H. Fish,
Walter B. Hall,
Parkman D. Howe,
Lindsey Morris,
William S. Pepperell,
John A. Perkins,
Jude C. Wadleigh.

Report of the Production Costs Committee

The Production Costs Committee has no report to make for the spring meeting April 30 and May 1, 1924.

Respectfully submitted,

James Sinclair, Chairman
Frank L. Branson
James E. Coburn
James McDowell
Kenneth Moller

Papers and Addresses at N. A. C. M. Convention

"Cotton—and The Making of Industrial New England" the Major Topic of Papers and Discussions at Regular Sessions—President Amory Exploits Slogan "New England Made"—No Substantiation for Over-Production Talk, Says Mr. Amory—Recent Textile Research Discussed at Technical Session

THE important role played by the cotton textile industry in the development of New England, and its even greater influence upon New England of today, were the leading subjects of papers and addresses at this week's convention in Boston of the National Association of Cotton Manufacturers. That it has been the dominant factor in the industrial and social growth of that section of the country was emphasized, and no doubt was expressed as to its remaining a vital factor provided the New England public realizes its value to them, and New England manufacturers are able to solve present perplexing problems as successfully as in last hundred years.

President Amory in his banquet address emphasized one of New England's greatest needs and possibilities when he suggested that its manufacturers capitalize the reputation of more than a century for integrity, skill and quality by identifying their products as "New England Made."

The technical session on Thursday was devoted to papers and discussions on recent textile research work, Prof. George B. Haven of the Massachusetts Institute of Technology describing several important researches at that institution, and W. A. Nivling discussing the results of investigations showing the effect of viscosity upon the sizing value of starches.

President's Address at Opening

By *Robert Amory*

THE objective of the National Association of Cotton Manufacturers is cooperation on the part of its members to the end that their mills can be successfully operated. At the present moment, when it would seem as if everything is against us, successful cooperation may seem like a far-off dream.

It is in just such times of difficulties and part-time running schedules that management has its greatest spur to improved methods and also the most time to make the long, careful experiments necessary to ensure success. We must carefully study every operation with the purpose of making it possible for our workers to greatly increase the production per operative. Often small and inexpensive changes in methods will accomplish this end. This is most necessary because economic history shows us that better wages are only possible through larger production. Cooperation through this association and exchange of information will spread these production improvements more rapidly and thereby make them of greater service to the community as a whole.

Would Encourage Visits to Mills

Your secretary and your technical secretary have done much toward this exchange of information but much more can be accomplished if more of our members will avail themselves of the service rendered by the association. Through the association much has been done to acquaint our New England public with the fact that the cotton manufacturing industry is the community's greatest asset and that it must be thoroughly supported by the public. Much more can be done in this direction, not only by the association but by the members individually. There are still entirely too many mills unmarked by signs of any prominence so that the passerby and even the neighbors are almost unaware of the existence of these mills. Too often the mill managers not only do not encourage but even forbid visitors to the great New England mills. This attitude encourages a certain erroneous popular feeling that cotton mills are unpleasant places in which to work and that the work is very hard. If more of the general public could visit some of our many first-class cotton mills this impression would rapidly disappear.

Stimulate Public Pride in Industry

Real knowledge of the inside of cotton mills would then become much more general and the public would realize that, compared with industry in general, the work is not particularly hard; in fact, the reverse, and that woking conditions as to surroundings, ventilation, etc. are unusually good. By a little thought arrangements can be made to show visitors a cotton mill without interruption to the work. This course would create a local pride in our large mills. Think of the thousands of visitors from all over the United States who come to New England in the summer, and realize the opportunities to show them New England's greatest industry and New England care and quality in manufacturing. Why hide the interiors of our great mills as if we were ashamed of them? We are and rightly should be proud of them.

Benefit of Exhibit

Speaking of New England quality, this association at our last meeting had an exhibit of ancient and modern cottons. During the six months since that meeting the exhibit has been in constant use all over the United States by the leading retail stores. Only last week it was back home here in Boston at C. F. Hovey Co. It has attracted much attention and what is more important has helped to sell a great many fine cotton goods. There is an excellent opportunity for the association to do much more of this sort of advertising.

At this convention, through the courtesy of Jordan Marsh Co., we have here in the hotel an exhibit of fine cottons showing many of this season's popular novelties. Examine these carefully and let us see what we can do to improve the quality of merchandise and of designing. Many of the goods in this exhibit are New England made and some are imported. These latter will show us something of the nature of the flood of fine goods which are now coming into this country. These importations are in sufficient volume to represent the stopping approximately of 35,000 of New England's fine looms and is a most serious proposition.

Higher Tariff Rates Needed

It would seem perfectly obvious that the members of the Association should take steps as rapidly as possible to invoke the flexible provision of our present tariff law so that the rates may be raised sufficient to help our mills against this flood of goods to assist in relieving some of the unemployment caused thereby. I am indebted for some of these figures to one of our members, Mr. W. S. Pepperell, whose recent speech was published in full in the last bulletin. If you have not read this speech, I recommend that you do so.

This whole question of imported goods deserves thorough study and united effort on our part. Not only are most of the imported goods coming in because they are cheaper but in many instances goods of equal price as compared to domestic and of the same or lower quality are coming in. There seems to be a distinct retail selling value in goods which bear the word "imported." This, however unpleasant and unfair to home industry, seems to be a fact which must be faced.

Why Not "New England Made?"

In our present difficulties here in New England why not take a leaf out of the importer's book? We recognize that the "imported" has selling value. It sounds exclusive and in the past, at least, it sounded like quality. New England goods also have had a reputation for quality. Why not use this method of the importers and capitalize "New England made?" New England is preeminently the producer of branded cotton cloth and it would be fairly simple to couple the words "New England made" with these well-known brands. It would involve a closer control of our merchandising and more advertising. A considerable extension of work along the lines of the association's traveling exhibit would be comparatively inexpensive and should pay many times over in the additional demand for our products.

If this suggestion were adopted fairly generally and the work properly handled there could in time be built up a demand for New England made fine cotton cloths that should render our trade secure for many years to come.

President's Address at Banquet

By *Robert Amory*

DOES the present slowness in the cotton goods trade indicate overproduction? It reminds me of the story of the doctor who was called in by an anxious negro mammy for her little black piccaninny. The doctor reported that the little fellow would be all right in a little while and that it was simply a case of too much watermelon. The mammy promptly replied, "Nevah too much watermelon! Too little niggah." It seems to fit the case of the cotton manufacturing business—not too many mills but too much capacity for the presem quantity of cotton available and perhaps too many goods at the prices which we should get based on the present cotton market. Note that I say, "for the prices which we should get"; not the present prices, for these are much lower than replacement values. All this talk of over-production, in the cotton goods industry at least, cannot be substantiated by the figures. Take, for example, the census reports:

Census year	Net Domestic Production Goods Over 12 in. in Width (Square Yards)
1909	5,968,046,622
1914	6,487,062,792
1919	5,634,352,658
1921	6,172,044,021

In terms of per capita production, the figures were as follows:

Census Year	Year Per Capita
1904	57.1
1909	66.9
1914	67.0
1919	54.1
1921	58.2

These show a very much smaller production per capita in 1921 (the last census available) than in 1909 or 1914; in fact, about the same production per capita as in 1899 and 1904.

Effect of Unstable Prices

Cotton manufacturing the world over has been thrown entirely out of gear by three successive short crops of American cotton. We all know only too well that this shortage has been brought about largely by the ravages of that infernal little insect called the boll weevil. The supplies of raw cotton in the world have been reduced to a point where the price is particularly susceptible to speculation on the great cotton exchanges.

The price of cotton has, on account of the shortage, naturally ruled high as compared with prices of most other raw materials. However, it is still the cheapest clothing material in the world, and, in spite of its relatively high price, would not have made business so very difficult had the price remained even reasonably steady. Looking back over the last two years spot cotton ranged from 17.75 cents in April, 1922, to 31.30 cents in March, 1923, down to 22.45 cents in July, 1923, up to 37.65 cents last December and recently down to 27.05 cents. Future quotations on the New York exchange have been even more erratic than the spot prices having reached to a low of 20.73 cents on August 1, 1923, up to 36.90 cents in December, 1923, and down to 23.45 cents recently.

Favors More Delivery Points

Whether a cotton exchange future market should operate to steady the course of prices or not, I do not know; but I doubt if the course of prices could have been any more erratic had there been no future exchanges. The New York Cotton Exchange has had a particularly bad effect, in that wild speculation there has been much worse than Liverpool. It is difficult to judge these things fairly but it has certainly looked as if the New York market led the recent advance and also led the decline. There have been suggestions made that the New York Exchange change its form of contract to make cotton deliverable at other centers than New York. While there are undoubtedly many difficulties in the way of such a plan it should be worth most careful consideration, provided such delivery points were located at mill centers as well as cotton producing centers. This would appear to allow of much larger quantities of cotton being available for delivery. The fact that cotton owned by mills could be delivered against a hedge with little difficulty or loss of time would certainly make the mills look on the practice of hedging with more favor and less apprehension.

No Real Test of High Prices

These wild changes in cotton prices have certainly had a most unsettling effect on the retail buyers and perhaps even on the consuming public, especially as there has been an unusual amount of newspaper publicity in connection with them. The shortage of cotton and the resulting high prices were difficulties enough with which to contend, without the sudden and violent fluctuations which have been our hard lot. There was enough of a question as to whether the public would balk at the prices on goods made out of cotton at over 30 cents without the price of cotton continually jumping up and down. So far, it has been impossible to find out whether the public would buy goods at such prices because goods based on cotton over 30 cents have not yet been passed on to the consumer. The situation is much like the story of a clerk who complained of his wife's continual demands for money. "Why" he said "every morning she asks me for ten dollars, and every night when I get home she asks me for ten dollars more." The other people in the office were very sympathetic and inquired as to what she did with all that money. The man answerd "I don't know because I never gave it to her." Our situation in regard to goods at prices based on high-priced cotton is much the same. We never sold them to the consumer. After much difficulty we worked prices up last autumn nearly to replacement value on cotton at a little over thirty cents. Then the New York future market began to drop rapidly and prices on goods fell even more rapidly until now they are based more nearly on twenty to twenty-five cent cotton. The consumer has, therefore, not yet been given a fair test as to whether or not she would buy staple cotton merchandise priced on a basis of over thirty cent cotton.

Effect of Change at Retail End

In addition to our troubles caused by trying to merchandise goods made of a raw material subject to such wild and erratic price changes we must consider the change in retail distribution. Retail stores throughout this country and particularly the large department stores have done very well. Their sales are large and through careful control of buying policies have held their stocks small and greatly increased the number of times per year that these small stocks are turned over. This policy of small stocks and a high rate of turn-over has thrown the load of carrying stocks back on the wholesaler and in turn onto the manufacturer. The manufacturer on his part either has not carefully noted this development of retail sales policy or has not been so wise as he should have been in adjusting himself to the new conditions by, in turn, keeping his stocks under careful control.

After the slow business of last summer the terrific rise in the price of cotton in the autumn caused the buying of a large volume of goods, mostly grey goods, at prices much below replacement costs but at a profit in most cases on the cotton then owned by the mills. In running to fill these orders undoubtedly the rate of production was continued at too high a pace particularly in certain sections of the country; that is, too great a production with a short crop of cotton and prices at thirty cents to thirty-seven cents a pound. It is always difficult to face short time operation. The mill managers know that short time reduces the pay envelopes of the workers to a point where it is very difficult for them to live and where much suffering may be caused. Also short time increases costs materially. I do not think I know of an instance where curtailment was put into effect until after the mill was actually running at a considerable loss.

Mills Did Not Curtail Soon Enough

For these reasons, the mills did not begin to curtail soon enough and actually began to stock a considerable quantity of cloth after their orders were filled in February or March. This fact, becoming known, coupled with the drop in cotton, caused a severe and disproportionate drop in the price of goods. It was also accompanied by the usual quantity of second-hand offerings of cloth from people who had overbought or bought for speculation and wanted to turn the goods into cash.

Thus there was available from these stocks, wholesaler's stocks, etc., excellent bargains for the retail stores which certainly justified their policy of small stocks and hand-to-mouth buying.

Curtailment Must Increase

Curtailment among cotton mills is now spreading over the country in earnest. It is aided by the fact that real cotton of spinnable quality is harder and harder to obtain in any quantities. If all the mills had begun to curtail last November it would have been far better for the whole situation including the workers, because from now on the curtailment, particularly on the part of the mills in those sections which have not yet done their share, must rapidly increase and there is bound to be much actual stopping of machinery this summer.

When everyone in the trade gets to talking about large stocks of merchandise then these stocks are never as large as is generally believed. The converse is also true that in times of a shortage of goods the shelves are never as bare as is generally believed. However, this last is unnecessary to state at this time because there is no shortage yet apparent.

N. E. Mills Well Merchandised

I would like to say in this room that the New England mills have been merchandised through this trying period rather better than the mills in the rest of the country. Whether from necessity, or wisdom they saw the need of curtailment and as a rule, so far as I know, are remarkably free from large accumulations of goods. In fact, it would appear that such stocks of goods as do exist are rather largely of the kinds of goods that are not used for clothing purposes. The stocks of goods for clothing purposes do not appear excessive and with the increasing curtailment should be entirely cleaned up and perhaps changed into a shortage before many months have passed.

Massachusetts Burden the Heaviest

Curtailment and unemployment have laid a heavy hand on New England now for a long time. Not for over a year has there been anything like full time operation and operations have steadily dwindled to less than 70%. Massachusetts has run considerably less hours than the rest of New England, in March averaging only 28 hours per week as compared with 35 hours for her sister states and compared with 60 hours for the cotton growing states. These figures should be enough to prove that legislative restriction of hours does not make mills run more steadily. In fact, the exact reverse is true in that such restrictions cause more irregular and intermittent employment.

Curtailment and unemployment are very hard for us all to bear and particularly so when there is no real hope of any increase in operating schedules until the new cotton crop is available next October. This curtailment is even harder to bear when so far it must be considered that we here in New England, and particularly Massachusetts, have had to do practically all the stopping of machinery that has been done up to date.

Better Business in Near Future

What the balance of this year holds forth it is not possible to say. Our industry is particularly hard hit by the scarcity of raw material, its consequent high price and especially by the violent fluctuations occurring daily in the futures markets. However, the scarcity of cotton, if nothing else, can hardly fail to cause a much greater curtailment in those sections of the country which have not yet been wise enough to do their share. The steady consumption of cotton goods with a greatly lessened production will in all probability in the not distant future use up any excessive stock of goods if not cause a scarcity. This condition will occur sooner or later depending on the way the new crop of cotton should appear to be coming along. The future months appear to be discounting a good crop, but at this time of year it is impossible to tell whether it will be a good crop, a fair one, or

even a poor one. All we know is that for the world's requirements we need a very good crop to make up the present shortage, and it is by no means a certainty that we shall have one as there are still liable to be boll weevils, not to mention bad weather possibilities. It is certain that curtailment must increase until this new crop, good or bad, is available and that by that time the quantity of cotton goods in this country will be much less than at present.

General Conditions Favorable

With all these troubles it is well to remember that general business is still very healthy. Money is easy. Distribution of all commodities, as shown by car loadings, is at a high rate. Employment outside of textiles is excellent. The European situation is remarkably improved. The Dawes report and its favorable reception mark a most important event. Should Germany really and honestly accept it and go to work to meet its conditions, the results on business should be marked the World over. In the United States general business is somewhat feverish caused by the quantity and variety of the politics being played in and by congress. As a result general business is having a sinking spell which the best authorities regard as temporary. Congress could do a whole lot toward curing this spell by passing the Mellon tax bill.

A Basis of Confidence

Fortunately, at the head of our government stands our own fellow citizen, Calvin Coolidge, cool, calm, and capable. When the country acquires confidence that President Coolidge will be retained for four years more and with a real Republican Congress that will follow his leadership, then can we feel real certainty of good business.

Report of the Secretary

By *Harry C. Meserve*

THE period covered by this report extends from the fall meeting, 1923, to the present time. Your secretary has long held the belief that the test of a trade association is really made when the industry is not functioning at its maximum. This has been true of our industry in the time covered and we have a feeling that the Association has never served the industry so directly and so helpfully as now, when our members find time to interest themselves in manufacturing problems.

Technical Department

A number of problems have been submitted to our Technical Department. The following brief resume is selected to show the wide scope of the requests.

1. The use and methods of handling artificial silk in decorating cotton fabrics.
2. The change in the properties of yarns due to special treatment.
3. The effect of sizing on the properties of certain warp yarns.
4. Costs of uneven web in hosiery.
5. Humidification of the cotton mill.
6. Investigation of spinning roll covers.

Besides the requests for investigations, there have been many requests for tests of a routine nature.

Statistical Department

The Statistical Department has been developing its work for the purpose of discovering what facts and figures are really helpful and may be used by our members. Both these departments have had the great advantage of the direction and advice of the extremely competent members of our Technical and Statistical Committees. Frequent meetings of these committees have been held and the months to come ought to show very definite results from their work.

The Statistical Department has made arrangements with the Bureau of Foreign and Domestic Commerce to obtain quarterly photostat sheets showing in minute detail imports of cotton yarn by counts and cotton cloth by average yarn numbers. These photostat sheets are made available to the trade as soon as received.

International cotton grey cloth prices have been brought to the stage where this office has a complete record of these prices from the first date of compilation of these figures to the present. The Textile Division is cooperating very nicely in sending current prices in this connection.

Bulletin

The Bulletin of the Association has devoted itself almost entirely to original matter gathered from the latest sources and seeks to include in its every issue information and practical facts which have not appeared elsewhere. It often happens that facts and figures appearing in such guise elsewhere are not readily understood and appreciated. When we find cases of this kind we attempt to interpret them so that they may be easily comprehended. The secretary would be very glad to receive suggestions as to how this Bulletin may be further improved.

Committees

The activities of your committees are only faintly outlined in the reports. These reports are necessarily routine in their nature, but nevertheless represent a considerable amount of special work. Your secretary has had occasion to comment in the past upon the faithfulness of the committees and the past six months mark an even higher standard than heretofore.

Wages North and South

There has been much discussion of late in the public press and in statistical organizations concerning wages North and South in the cotton industry. This is the only basic industry which makes such a division in wages. Were it not for the fact, and I emphasize the word "fact," that the wages in the North are distinctly higher than in the South, this comparison probably would not be made. In the consideration of wages paid in any industry, the amount of money in the pay envelope is the absolutely determining factor. Whatever other favorable working or living conditions may accompany the wage are simply additional inducements for the employee to seek the field of labor which most appeals to him. Every

H. C. Meserve, Secretary, National Association of Cotton Manufacturers

employer in every industry in all parts of the country has to meet competition for labor and each employer meets it on the basis of his "money in the pay envelope" while labor, as I have suggested, considers this and any other factor that may enter into the equation, from his point of view.

General Sweetser's Report

The Commissioner of Labor and Industries for Massachusetts recently made his report to the Government. This report has appeared, in part at least, in the newspapers, and in full in one or more of our trade journals. Copies of it are or will soon be available for all who are interested. The fact that the Commissioner is concerned with both labor and industry is prima facie evidence that it is intended to present all the facts from all sides without fear or favor. This, we believe, the Commissioner has succeeded in doing admirably.

Work Well Done

Only those who are familiar with the details of such a report as this, can understand the research and expense involved in obtaining the data necessary. This is only the first step, however. The facts must be studied, related, correlated, and every meaning made clear. Whether we agree with the conclusions or not, it is our belief that the commissioner has done a very complicated and difficult piece of work and done it extremely well.

Mill Villages

Closely related to the matter of wages, which has been mentioned above, is the subject of mill villages North and South. The general opinion in the South apparently is that no housing is provided for operatives in the North. Those of you who are engaged in the textile industry here, well remember that with the early mills there were always erected mill tenements for the housing of the operatives. It is true that in large mill cities the practice of housing the operatives has fallen into disuse and many mill tenement properties have been sold or converted. This movement, which has continued over a long period of years, however, was not initiated by the mills but by the operatives who desired to live where they chose. Many mill villages in New England still house all or a very large proportion of their employees. This is the general custom. A newspaper article which appeared a short time ago declared that $500,000 had been expended within the last year in Rhode Island alone. The mill villages provided in the South also include in many instances water, sewerage plants and other necessities of modern life. These are more than offset in the North by the general tax levy to provide the same improvements.

New England suffers by failing to present to the public at large the facts with regard to wages and housing, for New England provides the highest wages and the best housing to be found anywhere in the world in the textile industry.

The textile industry generally has been very much disturbed, and rightly, by the Government reports on the imports of cotton goods. Up to very recently it has been impossible to determine exactly what these goods were. In March and April of this year, however, the Government has more accurately defined the goods imported by amounts and values so that the picture is becoming more clear and our information more accurate. That the situation is serious need not be said to this group. The Board of Government of your Association was early aware of this and has carefully followed, through the Secretary's office, all developments.

The situation thus created is in all respects abnormal. There seems to be little doubt that the British textile industry is manufacturing these goods and selling them below cost, making it possible for them to be delivered here below the proper cost of domestic manufacturing. How long the British industry can carry on this cutthroat competition remains to be seen, but the urge of necessity may continue it for some time to come and the conditions arising from it have already been endured by our own manufacturers too long. The textile manufacturers of this country have a duty to themselves and to their employees quite as important as the duty which

confronts our competitors abroad. The secretary presents this situation to the Association without further comment, believing that with the facts in his possession which are available for your use, the Association is entirely competent to take such action as may be wise.

Board of Government

The meetings of your Board of Government have been well attended and the problems of the industry have been carefully considered. All matters mentioned in this report and many others have been considered by this Board and the interests of the industry have at no point been neglected.

Change of Secretary's Office

The Secretary's office after June 1 will be a suite of rooms with entrance through room 1043 in the Chamber of Commerce Building at 80 Federal Street, Boston. Arrangements have been made for a library reference and reading room for the use, at all times, of our members. Office conveniences will also be found there and you are sure of a cordial welcome and any assistance in our power.

The constant encouragement received from all our members and the constructive suggestions which they have offered, both personally and by mail, are of great help in the development of our work for the good of the industry. We deeply appreciate the general interest on the part of all our members and are glad of opportunities to serve you.

Respectfully submitted,

H. C. MESERVE,
Secretary.

Industry Part of National Economy

By *Magnus W. Alexander**

WHEN we think of the cotton industry in the United States, we see in our mind's eye the great South where the bulk of the world's cotton is grown, or the New England States where the political as well as industrial life of our great country began and where the cotton manufacturing industry today centers. To some of us the words "cotton industry" are synonomous with certain important cities, like Fall River, New Bedford, Lawrence, Lowell, Providence, New Orleans, Memphis, Baltimore, Louisville, Columbia, Chattanooga.

Yet the cotton industry is not a sectional industry. It is one of the basic industries that has a definite part in our national economy. It should not require much to recognize this. Even before we had begun to take our place among the world's great cotton manufacturers, a great part of the world had already begun to depend upon the cotton that we raised. The establishment of the first cotton mill in the United States—the old Slater mill at Pawtucket—was regarded as an event of national importance. Alexander Hamilton, first Secretary of the Treasury, thought the establishment of this mill of sufficient importance to mention it in the first annual report that he prepared. He pointed out that "the manufactory at Pawtucket has the merit of being the first in introducing into the United States the celebrated cotton mill, which not only furnishes materials for that manufactory, itself, but for the supply of private families for household manufacture."

To Hamilton the financial security of the United States was inseparately linked with the stability and progress of its industries. He hailed the beginning of the cotton manufacturing industry in the United States as an event of utmost importance. It has certainly played an important part in the political life of the United States as, indeed, it has in its economic life.

Anyone who considers for a moment the conditions in the cotton industry recognizes how much it influences and how it has been influenced by national economic conditions. Take, for example, the brief period 1914-1919 for comparison. In 1914, of the 393,404 wage earners employed in cotton manufacturing three-tenths of one per cent. were employed on a work-week of 48 hours or less. Five years later, according to the Census of Manufactures of the United States, there were 446,852 wage earners engaged in cotton manufacture, but the number of wage earners employed on a work-week of 48 hours or less was 39.3. If we take the wage situation in the same five-year period, we find, according to the studies of the National Industrial Conference Board, that average earnings in northern cotton mills in July, 1914, were 17.6 cents per hour, whereas at the peak in December, 1920, they were 53.6 cents an hour, and in January, 1924, 46.9 cents, or if we take another phase, one that has been the subject of considerable discussion in the cotton manufacturing industry, namely, the migration of mills to the South, we find that in 1879 New England employed 72.5% of all persons egaged in cotton manufacture, the Middle Atlantic States 15.7%, the Southern States 6.7%, and all the remaining states 5.17%. In 1919, 40 years later, the New England States employed only 47%, the Middle Atlantic States 9.4%, the Southern States 39.6% and all the remaining states 4%—a relative decrease for every section except the South.

During this 40-year period, the number of employees in cotton manufacturing rose from 125,000 to 210,000. Had New England maintained the same proportion of the total in 1919 as it did in 1879, it would have shown an increase of 199,000 instead of 85,000, and would have employed 324,000 persons instead of 210,000. The Southern States in this period increased from approximately 11,500 employees, to 177,000 employees, a gain of 165,000. In terms of percentage, the New England States in 1919 showed a 35.17% loss in their quota, as compared with 79%, whereas the Southern States showed a gain of 491%.

These changes are not isolated economic phenomena. There was a time when our industries were few and industry itself was highly localized, when industries were much more independent and not greatly influenced by conditions in other industries. That day, however, has long since gone. We live today in a highly organized and complex economic world in which men and industries are interdependent, and in which every industry is under the necessity not only to know what is going on in other industries but in taking an active part in the common problems of industry.

Let us see somewhat more closely, however, the part the cotton industry plays in our national economy. One of the significant developments of the war has been the growth in national economic consciousness. In every country of the world there is today more interest in economic problems, more legislation affecting industry, more concern about natural resources than probably at any time during the present century. In some countries this consciousness has expressed itself in political action of a far-reaching character. In fact, this economic consciousness almost ran into hysteria in the years immediately following the war, when many of the smaller countries, like Czechoslovakia and Poland practically forbade trade with neighboring countries and a British Prime Minister went to the polls to seek support for a policy of tariff protection. The United States, too, has shared in this spirit of national economic consciousness, but our better position than the rest of the world is in a large measure no doubt due to the sanity which we have displayed in a period of world turmoil.

Yet, our world economic position is not insignificant. With only 5.8% of the world's population and 5.3% of the world's land area, we produced in 1920 84.4% of the world's automobiles and motor trucks, 52.2% of its pig iron, 49.5% of its coal, 63.8% of its petroleum, 40.7% of its cereals, and 71.2% of its cotton. But in cotton alone, of the textile groups, are we independent. During the period 1910 to 1922 we produced an average of 13,000,000 bales of cotton a year and exported an average of 7,000,000 bales yearly.

A significant point here is the change in the character of our import and export trade which has taken place within the last century. Whereas in 1820 the bulk of our imports were of manufactured goods, there has been a steady change in this condition until in 1922 the bulk of our imports was crude foodstuffs, crude materials for manufacturing, and semi-manufactured goods. A condition somewhat different took place in the same 100-year period in respect to our exports. Whereas in 1820 about one-fourth of our exports were of manufactured goods, in 1922 the proportion was two-fifths, and this figure was not in line with the general trend in the years preceding. On the other hand, for raw materials used for manufacturing purposes, there has been a steady increase since 1820, whereas for exports the reverse is shown.

In 1919, according to the last census of manufactures, among the various manufacturing industries in the United States, cotton goods manufacture ranked fourth in point of number of wage earners employed and value added by manufacture respectively, and fifth among the industries in cost of materials and also in value of products.

We also find that the value of manufactured cotton products in 1921 was $1,330,577,023, as compared with $399,200,320 in 1899. Increases in specific items in 1921 as compared to 1899 were:

	1921	1899	Per cent inc.
Materials ..	$731,927,432	$176,551,927	314
Wages	340,815,012	86,689,762	293
Salaries ...	39,730,476	7,350,130	440

We find in regard to employment that northern cotton mills are somewhat below the average in employment of all industries, and southern cotton mills somewhat above the average. For every 100 persons employed in manufacturing in June, 1920, there were employed in December, 1923, only 87, and in January, 1924, 85. In northern cotton mills for every 100 persons employed in June, 1920, there were employed 82 in December, 1923, and 60 in January, 1924. Southern cotton mills showed in comparison with the 100 persons employed in June, 1920, 114 in December, 1923, and 111 in January, 1924.

Wages showed that the average employe in the northern cotton manufacturing industry was considerably better off than was the average employe in manufacturing. Average hourly earnings of all wage earners in manufacturing were 24.5c. in July, 1914, and 55.8c. in January, 1924. Average weekly earnings in the same period for northern cotton mills were 17.6 cents and 46.9 cents, respectively, and for southern cotton mills 11.7 cents and 35.1 cents, respectively. These figures represent,

* Managing Director, National Industrial Conference Board.

however, money earnings alone. If these money earnings are translated into terms of purchasing power, we find that whereas in February, 1924, the average employe, measured by his real hourly earnings, was 40% better off and by his real weekly earnings 32% better off than in July, 1914, the average employe in northern cotton mills was 63% better off, measured by his real weekly earnings, while the southern cotton mill employe, measured by real hourly earnings was 89% better off and measured by real weekly earnings 71% better off.

Founding of Industrial Centers

By *H. C. Meserve**

HISTORY has an interesting way of repeating itself and the early story of New England follows, generally speaking, orthodox lines.

In the founding and growth of industrial centers here, however, certain elements of thoroughness and permanence are found which were often lacking in later developments elsewhere in our country. New England is notable in that it has experienced no boom in industry in the ordinary use of that word. In this respect there is a marked contrast to other sections where for one reason or another towns and cities appeared almost over night. Many of these sudden growths disappeared with almost equal rapidity, while others have had phenomenal expansion.

In New England the old centers of population conceived industrial ideas and carried them into execution with the profound belief that they were building for a distant future. By "old centers" we mean the centers of commerce and banking of which the earliest and most conspicuous example is Boston. The manufacturing ideal grew out of the demand; the demand stimulated the industrial vision; money furnished the means and the water powers of New England suggested the sites of the mills.

The Early Mill Community

Mill towns, which we are chiefly to consider in this paper, were planned and built for long periods of usefulness. The most substantial building materials were used in the buildings and the housing of the operatives was arranged for on a most adequate scale, when the home conditions then obtaining are considered. The mill towns, founded with a single purpose, namely, the development of the textile industry, were designed to be self-contained as well as self-supporting. All the requirements of communal life were considered before the virgin ground was cleared. Mills, houses, churches, schools, banks, stores, hospitals, in fact all the necessities of the time were provided for in the comprehensive plan.

Aroused Wonder of Foreigners

Old-time New Englanders, who are more or less familiar with these industrial villages, towns, and cities, live in them or pass through them without thought or comment. In fact, it seems to have been a part of the New England attitude that the things which are always have been, and that the remarkable thing was that anyone should think them unusual or worthy of notice. I suppose that in all the industrial history of the world there never has been such a unique development as this with less advertising at its source and with more comment from the outside. In the early days (1830-70) there was a constant stream of distinguished visitors from all over our own country, and official and semi-official visitors from England and France. The history of Lowell records the visits of Presidents Tyler, Polk and Pierce, also Mr. Lincoln while he was still in the House of Representatives; of M. Chevalier, French political economist, who was sent by M. Thiers, Minister of the Interior to Louis Phillippe, to inspect the public works in America. He was so pleased with what he saw that some 20 odd years later he wrote to Senator Sumner seeking his aid to secure a group of mill girls for the Paris Exposition of '67. There were lecture courses which attracted leaders of thought of the day—Emerson, Phillips, Gough, Garrison, etc. Dickens made a reference in his American notes to the employes and working conditions which he found in Lowell, so much superior to anything he knew in his own country.

New Englanders Shun Publicity

While according to all these visitors a courteous reception, New England seemed to be rather bored that the doing of what to New England was such an obviously necessary thing should arouse the interest of anyone outside.

It is my feeling that this attitude is still maintained. New Englanders are the poorest advertisers in the world. They do the most astonishing things in industry with the least publicity of any group of industrialists known. It is because of these conditions, which are a part of our history, and the attitude taken toward them, which is a part of our tradition, that it seems worthwhile to present in a brief way the story of the making of industrial New England so far as the textile industry is concerned.

The industrial urge began before the Revolutionary War and undoubtedly contributed to the spirit which expressed itself in this conflict. America for Americans translated itself into American products for American people and the colonists were tremendously proud of the fact that they were so nearly self-sustaining.

Following the Revolution and the political disturbance which resulted finally in the ratification of the Constitution and the real inauguration of the United States as a nation, the industrial scheme was still further developed. Samuel Slater in his first mill, with redesigned and adapted English machinery of his own making, suggested the possibilities and in the 30 years following 1790 many small mills were built throughout New England.

The merchants of this later time, and they correspond somewhat closely to the selling houses of today, became the promoters of many of our successful mill enterprises from 1820 onward. They were animated by patriotic motives, I am led to believe, as well as by expectations of profit. In many cases they furnished the capital and secured the support of such moneys as they did not themselves furnish.

It is interesting to note that our early successful mills were organized much on the same plan as today. The financial, managerial, and manufacturing departments were more or less distinct although the small size of the mills did not require the diversity which is everywhere present today. Water powers were eagerly sought and regarded as absolutely essential to mill operation. If water powers were located apart from the then "civilization" this did not at all deter the early builders.

Lowell and Lawrence are Typical

Two great manufacturing cities in Massachusetts amply illustrate this condition; Lowell in 1822 and Lawrence in 1845 were heads of water power and nothing else. They were built for mill cities and are essentially mill cities today. Whatever of prosperity they enjoy is because of the mills.

In 1822 Lowell had a rural population of 200. The first mill was built in that year and began to run in 1823. The population in 1828 was 3,500, in 1830, 6,477, and 17,633 in 1836 when Lowell became a city. As the mills multiplied the population steadily increased until in 1890 it was 77,696. Today it is 112,759.

Similar conditions obtained in Lawrence and today Lawrence is a city of 97,289 inhabitants and 35 textile mills. Maurice B. Dorgan in his story of "Lawrence Yesterday and Today" says "No history of Lawrence would be complete without a chapter devoted to the industrial growth of the city. Over half of the city's valuation comes from the 40 or more industrial concerns and most of it represents property of the textile manufactories, their plants alone covering a land area estimated to be about 283 acres. The development of the great mills has been the most remarkable feature of Lawrence's history. They are the backbone of the community—the city's greatest asset. Their army of operatives would make a good sized city in itself. They give directly employment to about one-third of the population and as the channels of trade are filled largely by the earnings of the textile workers, they are the life blood of the remaining two-thirds. Their presence has attracted other industries."

Fall River, where such surprising developments have taken place in the industry, is declared by Rev. Orin Fowler to have had in the year 1803 eighteen dwelling houses and 100 inhabitants. From the first mill, erected in 1811 by Colonel Joseph Durfee at Globe Village which contained less than 500 spindles, the development continued for some 60 years. In the centennial year, 1876, it is noted that Fall River shows 33 mills with over 1,250,000 spindles and with over 58,000,000 pounds of cotton consumed annually, making 340,000,000 yards of cloth, an invested capital of $30,000,000 and 1,400 employes, the population of the city was considerably over 45,000. Today the population of Fall River is 120,912, the mills over 80 and the spindles 4,072,128.

New Bedford and Salem

New Bedford gives an interesting example of the versatility of New England peoples. From the first whaling city in the country to a member of the leading textile cities of the country, New Bedford changed in a remarkably short period of time. In 1846 the growing interest in textiles culminated in the organization of the first mill. Many difficulties surrounded this effort for the people whom it was sought to interest seemed to feel that New Bedford was not a suitable locality, transportation operated against it, and the natural reluctance further contributed. All these difficulties were overcome and goods were put out from the first mill in 1849.

It was 20 years before the next company was organized. From this time on, however, the growth was rapid. The population in 1840 was 12,000, in 1850, 16,000 and today is 130,072.

Salem had always been a shipping town but turned suddenly to textiles. In 1848 the first and only company was in full operation. From 30,000 spindles and 640 looms in this first mill, erected at a cost including its boarding houses of $565,715.77, it has grown to 153,296 spindles and 2,924 looms and $3,000,000 capital.

Nashua and Manchester, N. H.

The water powers of New Hampshire were also harnessed. The rural population of the old town of Dunstable gathered at the junction of the Nashua and Merrimack Rivers where in 1826 the first mill was put in operation. Within ten years two other mills were completed and in 1836 the town was set apart from Dunstable as Nashua. Another mill was added in 1844. The population at that time was over 6,000 and about 9,000 in 1853. The whole number of spindles in 1844 was 32,074 and the looms 940 There were 853 female operatives and 225 males. These mills manufactured 11,500,000 yards of cloth a year using 8,000 bales of cotton. The interest of the employers in the operatives is shown by the deposits in the

* Secretary of The National Association of Cotton Manufacturers, Boston, Mass.

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Brookside Mills, Knoxville, Tenn.
Columbus Mfg. Co., Columbus, Ga.
Dixie Cotton Mills, LaGrange, Ga.
Equinox Mills, Anderson, S. C.
Gluck Mills, Anderson, S. C.
Hamilton Woolen Co., Southbridge, Mass.
New England Bunting Co., Lowell, Mass.
Palmetto Cotton Mills, Palmetto, Ga.
Piedmont Cotton Mills, Egan, Ga.
Samoset Cotton Mills, Talladega, Ala.
Sherman Mfg. Co., Sherman, Tex.
Suncook Mills, Suncook, N. H.
Warwick Mills, Centreville, R. I.

West Point Mfg. Co., West Point, Ga.
Lanett Mill, Lanett, Ala.
Langdale Mill, Langdale, Ala.
Riverdale Mill, Riverview, Ala.
Shawmut Mill, Shawmut, Ala.
Fairfax Mill, Fairfax, Ala.

savings bank of the year 1845 when $44,000 had been deposited by 346 depositors, three-fourths of whom were females. An interesting table is also shown of the women employees of the Nashua Manufacturing Company's mills and the proportion thereof who attended meeting, were members of the Sabbath School and professors of religion:

	Whole no. girls employed	No. who em- attend meeting	Attend Sabbath school	M'mers of churches
No. 1 mill..	214	194	116	67
No. 2 mill..	216	206	131	82
No. 3 mill..	196	167	88	52
No. 4 mill..	170	151	73	43
Cloth room.	8	8	8	8
Total	800	726	411	250

In the semi-centennial celebration of 1903 the Nashua of 1853 with its 9,000 souls and $4,250,000 valuation and capital engaged in manufacture of $2,000,000 is compared with the Nashua of that date (1903) with a remarkable capital in industries of over $9,500,000 and a manufacturing product of over $11,000,000. The population in 1900 was 23,898; today, 42,529.

Further up the Merrimack at Manchester cotton manufacturing on a small scale was introduced at Amoskeag in 1809 by Benjamin Prichard. The growth of what is now known as the Amoskeag Company reads like a romance. In a historical sketch issued by the Board of Trade of Manchester in 1890 a description is given of the development of this corporation and the final clause is interesting as showing the opinion of the citizens: "The liberal policy pursued by the Amoskeag Company and the city government has resulted in the establishment in Manchester of not only vast mills, but other large industries." From the time of the first primitive mill in 1809 when the population was 615 to 1890 when the population was 44,105 is really a record of the contribution which the industry makes, not only to the industry of the country, but to the community in which it operates.

The Industry in Maine

Turning to Maine and reading from "The Maine Book" by Henry E. Dunnack (1920) we find that "One of the pioneer mills was established in Brunswick in 1809, another at Wilton in 1810, and the third in Gardiner in 1811. In 1820 returns made to the legislature show that there were nine cotton and woolen factories in Maine, but it is probable that the majority of them were woolen mills. It has been stated by apparently good authority that there were then six small woolen mills in the state. The capital invested was small, only $11,000 for the nine mills.

"The manufacture of cotton goods has been for a long time one of the most important industries of the state, for several decades taking first rank, and is still increasing; yet in 1905 on the basis of capital invested, it took second rank, pulp and paper being first and on the basis of value of product it was exceeded only by pulp, paper, lumber and timber products."

Maine, following as always the water powers, the Biddeford-Saco development began not only cotton manufacturing in 1825 when a company purchased property for the erection of a cotton manufactory, but also the iron works which eventually became contributory to the industry. Gradually the workers of these towns changed from lumbering and native products like clay and stone to manufacturing and eventually the mills and the machine shops became the great industries. It is noted that in 1829 there were 500 persons connected with the industry of whom 400 were housed by the company. The population of Saco and Biddeford in 1829 was 5,214 and today 25,158.

Lewiston, at the water power on the Androscoggin River, opened its industrial history about 1845 and new mills continued to be constructed for the next 20 years, although cotton warps were manufactured in a very small way in 1836. The population just prior to the introduction of the mills was 1,800, which increased by 1876 to nearly 20,000 with $12,500,000 of property. The population today is 33,790.

Waterville, on the Kennebec, began as a lumbering community, and it was not until 1873 that plans for a cotton mill of 33,000 spindles were made. The population of the town at about the time the first mill was built was less than 5,000, while today it is 14,034 of whom some 1,300 are mill employes.

Westbrook also attracted manufacturing and the development from 1854 when there were 16 resident families with 16 houses to the present population of 9,873 is due to the development of the textile industry.

Quoting again from The Maine Book the writer says: "At the present time there are in the state of Maine 16 mills devoted to the manufacture of cotton goods. Fourteen of these mills are producing cotton goods exclusively. Two are combined with the woolen industry. According to the Official Textile Directory of 1919, these factories represent a total evaluation of $19,388,000 and employ 13,827 people, of whom 7,606 are female and 6,221 male workers. The assessed valuation of these mills given by the State Board of Assessors is $13,336,460.

"Water power is used to run six of the 16 mills, three are run by a combination of water power and electricity, five use water and steam while one employs all three forms of power. There are 944,274 spindles and 28,119 looms contained in all these factories." (The Maine Book, by Henry E. Dunnack, published in 1920).

Rhode Island's Growth

Rhode Island, the earliest home of the cotton industry has always remained true to its first love. Providence, with only two mills within its limits, is the natural center of all. The water power sites within the state were early acquired and mills are to be found in every favorable location along the Blackstone and Pawtucket river valleys. With the construction of the railroads after 1835 transportation was facilitated and the growth of the mills accelerated. To an unusual degree also there was developed the allied industries of dyeing, bleaching and machinery. The concentration of textile resources within the boundaries of Rhode Island makes it probably the most remarkable industrial state in the Union. The population of Rhode Island in 1830 was 97,210 and today is 626,672. The increase is due in a large measure to the successful operation of the textile and allied industries.

Connecticut's Early Start

The eastern part of Connecticut followed closely the development of Rhode Island in the textile industry. The river valleys were again used for water power and the center of industry in the early days was Norwich and the rivers flowing into the Thames, Shetucket, Yantic and Quinnebaug. Here again we have a community turning from its early industry to textiles. Norwich was prominent among the commercial cities of New England on account of its shipping and shipbuilding industries. The first mill was started in 1823. Previous to 1840 Norwich was the largest manufacturing town in Connecticut and the products of its mills in 1830 amounted to $1,150,205, which in those days was regarded as an enormous sum from such a source. From 1823 to 1829 four joint stock companies were organized to manufacture cotton goods in connection with woolen goods whose combined capital was in excess of $1,500,000. Three of the mills were operating in 1888 with a capital of $2,500,000 and the fourth was not a joint stock company. These mills employed 2,800 operatives in 1874, manufactured 34,500,000 yards of cloth, consumed 8,650,000 pounds cotton and had 184,000 spindles. Today the capital of the Norwich mills is $4,422,800, the spindles, 251,252, and the employes, 2,825.

This reviews in a most general way the centers of textile manufacturing in New England from the early days. It does not pretend to cover the whole ground, for time would fail me if I should call attention to the mills outside of these larger centers, situated on water powers that seemed favorable and located apparently without regard to transportation in the early days. Many of these mills have been highly successful and continue to this day. These mills were in Maine and New Hampshire and Connecticut outside of the centers noted and also in Massachusetts, where to cite a single instance the mills in the Berkshires may well merit a word. In Adams, in 1829, the first mill was started for the manufacture of sheetings. The growth from that day to this has been continuous until from this small beginning has issued a real cotton manufacturing center in this region, numbering approximately today some 500,000 spindles.

Built on Permanent Foundations

What has been said does not in any worthy sense express the vision of the founders of our industry nor mark in any adequate degree the skill, energy and enthusiasm which they exhibited. There are several considerations, however, that mark this great enterprise which call for comment at least.

It will always be a constant wonder to me that so many thrifty New Englanders, with the conservatism which still marks this section of the country, could be induced to subscribe what was, for those days, such a huge amount of capital in these new and untried ventures.

The Changes in Housing

The changes that came about were gradual but in the end complete. It furnishes an object lesson for the future if we are to continue to judge the future by the past. Long before employe houses in industrial centers were abandoned by the corporation, individuals who occupied these houses desired to own or to rent houses of their own in locations of their own choosing. The movement at first was slow, but it was continuous and growing. Even before the arrival of operatives from other countries the migration from the mill tenements had begun. After the coming of these new operatives this movement was accelerated and continued for a period of 70 years and more until today in mill centers where housing may be obtained outside that provided by the mills, it is quite the custom for operatives to reside where they please. At first this movement was quietly opposed by mill managements which naturally desired to have the housing provided by them used. As the movement increased, however, this opposition was entirely withdrawn and for many years no impediment has been placed upon any operative as to his place of abode.

Housing by Country Mills

The housing movement which began with the mills, in small places as well as large, continues however to a degree far beyond the general knowledge. Only in mills located in cities has company housing fallen into disuse. In the smaller communities throughout New England are always to be found mill villages (so called) providing housing accommodations which for cheapness of rent, comforts of life, etc., are far beyond those to be found anywhere else in the country. This is following the recognized principle which was inaugurated with the establishment of the mill business in New England; namely that the welfare of the operatives is a necessary consideration in the success of the mill. The expense necessary, although often large, was a proper carrying charge and has always so been recognized.

Operative's Welfare Considered

Mill wages in New England have always been considered as "money in the pay envelope" and cost of housing when provided by the mills, although furnished invariably at a cost to the operative very much below anything comparable to be obtained elsewhere, has never been regarded as a part of the mill wage. In the early days

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this consideration shown for operatives received the most favorable comment throughout the world. The unhappy conditions in the industry in other countries was always contrasted with the most happy condition of operatives here. The changes which time has brought have not materially altered this consideration which was a part of the plan of the founders of the industry. Traditions die slowly and especially in New England and this, one of the first traditions of the industry, has been consistently maintained to this day. I have traveled somewhat extensively North, South and in Europe and I unhesitatingly say that there are no mill villages anywhere in the world that are comparable for cost, conveniences and comfort with the mill villages maintained in New England.

In addition there are no wages paid anywhere else in the world that are comparable with the mill wages in New England. There are no operatives, in this country at least, comparable in skill with our mill operatives and there are only a few places in the world where this skill has its equal. There is no mill center outside of New England where hours of work are so short, where manufacturing conditions are so consistently good, where so much care and thoughtfulness is given to the physcal welfare of the operatives.

Where American Citizens are Made

The 100 years of this industry have brought many changes in methods and machinery looking toward a more perfect product. It was equally inevitable that there should be changes in operatives. I dislike, even to resentment, the supercilious manner which some outside of New England assume toward our mill population. Personally I have seen, as it were, the passing of the nations through our mills. I have also seen foreigners enter our mills and in due time emerge as American citizens. This has continued from the earliest immigrants to the present day. The number of our American citizens in our mills is comparable with mill populations anywhere in this country. I resented the hyphenate in 1917, I resent it today. I believe in the United States and its citizens. I care not for his antecedents. I consider that any person who has come to this country from any other country in the world, who has worked here and come to love this country so much that he desired to become a citizen here, has by that sign not only stripped himself of all other allegiance but has committed himself to the welfare of the community in which he lives and of the country of which he is a part. He is free to come and go as he will and to work where he will. If any industry or any part of an industry is closed to him the act of that closing is unjust and thoroughly un-American.

Will Surpass "Good Old Days"

In industry there is and there can be no sectionalism. There is no sectionalism. There is no North and no South. The textile industry is one. It has many problems in common and its local differences are incidental rather than essential. The success of New England in a virgin field is not a story of the past, but a mere record of the facts. It is successful *now* and it will be successful for generations to come. Adjustments may be required, but they will be made. I need not suggest to such a company as this that what seems to be a phenomenal growth elsewhere, does not mean decadence at home. If a community outside of New England establishes a mill where none has been before the increase of mills in that community is 100%. If another community which has two mills adds two more the increase is still 100%. Neither of these facts, however, argue that a community in which there are a number of mills, which have not added to their number in the same period of time, is not successful. It is necessary that children leave home, but the success of the children in their new fields of endeavor does not mean even a minor loss to the well-established home family. The difficulties which we at present face and which are well known to you inevitably will be adjusted. The industry is not confined to a few or even to a small group, but concerns the welfare of thousands of stockholders and tens of thousands of employes. The industry is based, not upon the fluctuation of season or even of year to year, but counts its successes over decades and concerns itself with broad trade movements. The financial policy adopted by its founders, after the first bitter experiences, has been maintained and will continue to be successful.

With the best equipment of capital, plant, community, employes and markets, the future success will continue to surpass what we like to think of as "good old days."

The Community and the Industry

By *S. H. Thompson* *

EPOCHS are born into the world as are individuals, for they are the offspring of the human mind. The thought germ develops slowly, then takes shape and an epoch is born and its birth revolutionizes old ideas and their processes. Civilization quickly adopts the new and adapts herself accordingly.

Whether iron or cotton is King of the industrial world today is still debated. If Iron is King then we may justly claim that Cotton is Queen, for civilization cannot set up its claim as such without a proper garb to clothe itself.

The art of weaving is almost as old as the human race and it remained for the weaver to clothe and fit man for the new civilization he had forged.

The factory system, the new feature of modern industrialism, became an established fact and force in the economic life of the world, especially of England. The origin of this system began in Europe in the 18th century when it was realized that profits could more easily be made in manufacturing articles by machinery and by the use of specialized labor than by the old methods of handicrafts of the men and women living and working in their own homes, mostly in rural districts.

Inventions multiplied rapidly. The increased development in the weaving industry caused demands for more yarn which, in turn, provided more inventions. Arkwright's invention demanded greater weaving capacity and the Rev. Edmund Cartwright's loom came into existence. This was followed by Hargreave's spinning jenney and Crompton's mule jenney. All these inventions were English. They were jealously guarded by England and not for many years were they used in America.

Debt to Francis Lowell

We now come to America and to one who gave to America the beginning of a new industry and whose memory we all delight to honor—Francis Cabot Lowell—whose 150th anniversary we shall soon celebrate. To him belongs the credit of installing and financing the power loom for American use and interesting himself in the social as well as the commercial effects of the factory system. He was the originator of cotton manufacturing in America. He was born in Newburyport in 1775. His parents were Judge John Lowell and Sarah Higgins Lowell. In 1793 he was graduated from Harvard College and started his career as a merchant, but failing health sent him to England where he became interested in cotton manufacturing (an interesting story in itself but it cannot be dealt with in this paper). With Paul Moody, another genius, he established a plant in Waltham. I have given this brief sketch of Mr. Lowell's life to introduce him, not only as the Father of the cotton industry in America but as the originator of a system of supervising the welfare of the operatives.

Early Handicaps

New England was handicapped by her sister colonies in many ways. She could not support herself by agriculture alone and, of course, had no agricultural surplus to export. About the only thing she had that England wanted was ship masts from her pine forests. Denied other resources of wealth she found profit in the fishing along her coast, for hers was the best fishing ground of the world and New England's fleets were famous, if her farms were not.

During the Revolution a new era came, with conditions differing from those of Colonial days. The American market, dependent upon foreign manufacture, was suddenly cut off and thrown upon her own resources. Her own commodities, thrown back upon her own people, sent prices down while imports, greatly shut off, rose in price and manufacturing found an instant opening. But this period of manufacturing remained only during the war. With the ending of the war a flood of British merchandise was thrown into American markets which almost wiped out many young industries.

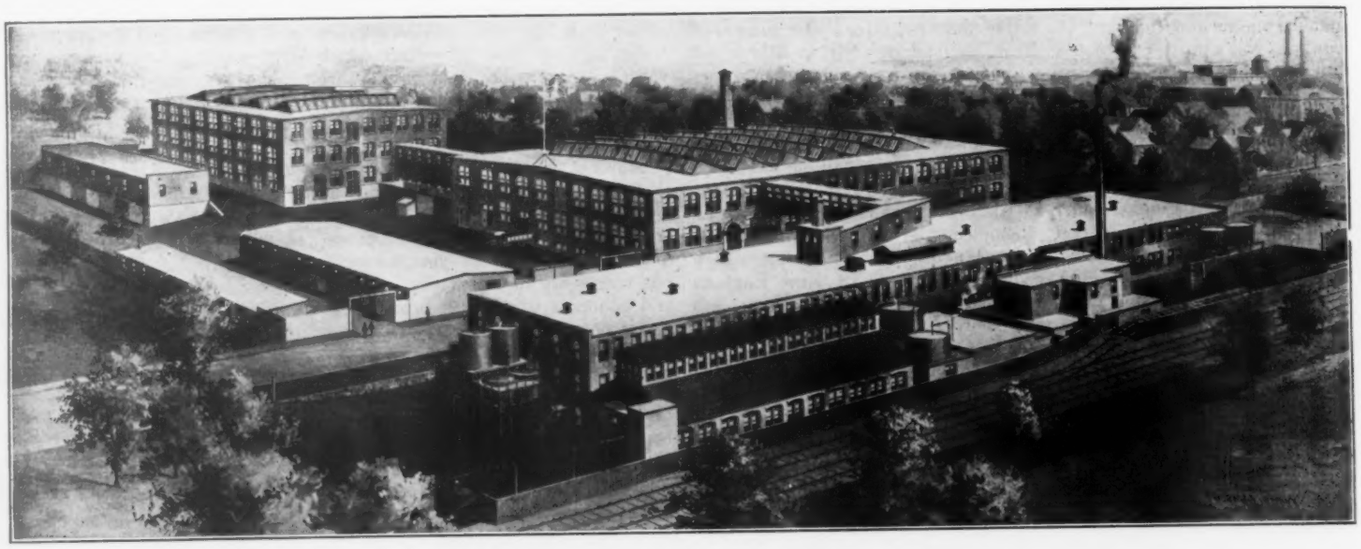
S. H. Thompson, Who Spoke on "The Community and the Industry"

Start Factory System Here

The war of 1912 reversed things and finally established the "factory system" in the United States and the first complete cotton factory was built in Waltham, Mass. (Now the Boston Mfg. Co.)

At the close of the Revolutionary War, we, with all other nations outside of England, wanted a share in the new cotton industry. We had broken political bonds and were anxious to establish our economic freedom. England, of course, blocked every effort and refused to sell us any machinery or parts and prohibited exportation of skilled artisans. She naturally wanted to keep a good thing and was justified in so doing. Attempts in various parts of this country were made and failed. Our struggles, however, interested a young man, Samuel Slater, who responded to a prize offered in an advertisement in Philadelphia for information concerning English cotton machinery. He came here secretly, went to Philadelphia hoping to start business there but Philadelphia did not welcome him and lost the opportunity that awaited her bidding. Philadelphia had long since established knitting and the city was full of Dutch and German weavers. Ideally situated, with climatic conditions favorable to such manufacturing, had Philadelphia taken on cotton manufacturing it is quite probable that New England would never have established it. Slater finally went to Rhode Island at the suggestion of Moses Brown, a merchant and im-

*Thompson Hardware Co., Lowell, Mass.



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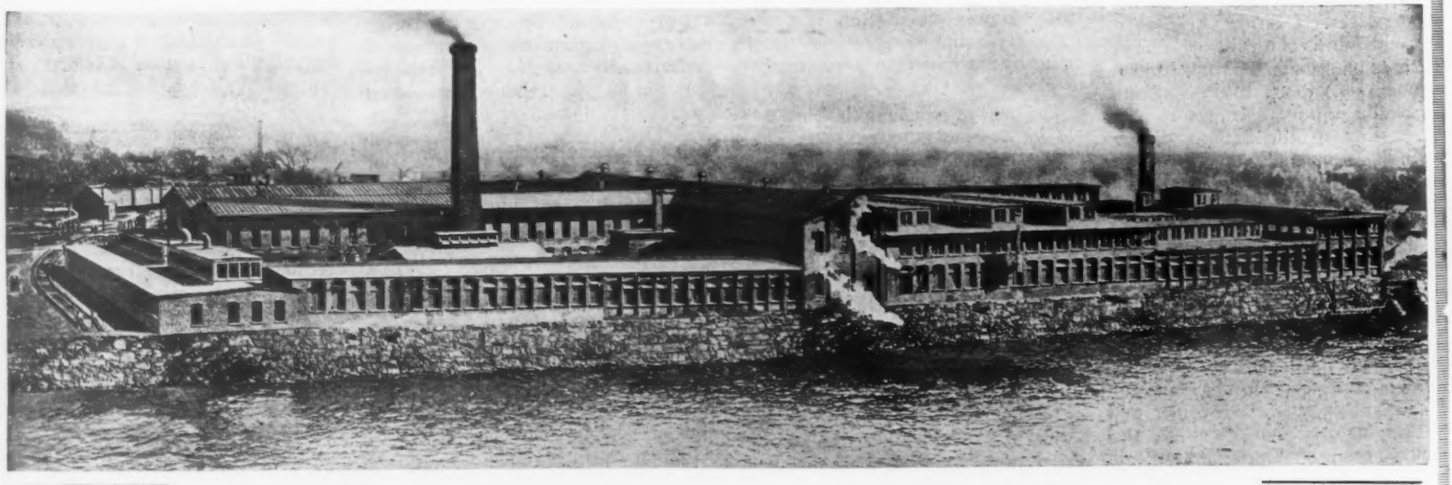

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porter of India cotton cloth. It was in Pawtucket, Rhode Island, in 1790 that the first successful cotton mill in America was established. Slater and his relatives reigned supreme in cotton manufacture until 1814. In ten years 29 other mills had sprung up in Rhode Island and in ten years more 62 mills in New England with 25 additional ones were in construction.

New England, being handicapped in agriculture, welcomed this new industry as a new way of making a living. The need for some other means of livelihood in Massachusetts aside from farming was growing, due to an inheritance law that required "all heirs to share equally," with the result that a large number of small farmers were forced to earn a living with small industries.

The trading boats between Salem, Boston, Providence and the West Indies brought cargoes of raw cotton in exchange for fish caught off our shores. No American grown cotton was then used in New England because of the direct trade between the South and England. There was a better market in Liverpool for American cotton than in Providence and freight rates were lower. It was natural, then for New England's cotton to come to her in her vessels carrying her commerce. The industry was now secure in its wealth and its water power anchored it firmly. However, for 25 years its history was meager and primitive. Cotton manufacture was often taken on as a side line with some other industry. It was housed sometimes between walls where flour, shingles, wool cloth, augur bits, axes, matches, spokes, shoe lasts, mattresses, pails and various other commodities were also made. New England is strewn with the wrecks of many early adventures in this industry and I have seen many broken raceways and old water wheels that grimly mark the scenes of early ventures.

The Founding of Lowell

I want to take you back into the early days of what is now the great and prosperous city of Lowell, then East Chelmsford, and show you briefly in its progressive history the effect of this great industry upon the community. (Picture was shown.) The scene is just 103 years ago.

The Merrimack River, then as now, coursed its way through a part of East Chelmsford with falls at Pawtucket. Farms were on either side, well cultivated and prosperous, and across the river to the north were the Dracut hills, and beyond the junction of the Concord River the Belvidere Hills. The river seemed to invite exploit by its roar as it rushed from Pawtucket to Hunt Falls, while the Concord River was different from its usual sluggish course as it reached Chelmsford, for here it sprang into new life as if glad to unite with the Merrimack and lose itself in those turbulent waters a mile beyond. The Concord also invited enterprise which was accepted later on when Oliver Whipple saw in it the possibility of power and dug what was probably the first canal for power use in America. This canal is still in use.

Another epoch was born. Events were shaping to change the entire life, character and mode of living in New England and many of the quiet rural communities were to be transformed and suddenly awakened into new and vigorous life.

The part that the city of Lowell was to take in this new era was a most important one. It changed from a farming community to a busy town in two years, in 13 years it became a city, and 12 years later the second city in size to Boston in Massachusetts. Its rapid growth was the marvel of the age and reads like a romance. Fortunes were easily and quickly made. Land values jumped over night. Kirk Boott, the original purchaser of the site of Lowell, bought 100 acres of a 110-acre farm for $17 an acre, and was forced to pay $362 per acre for 7½ acres of the balance and $2,222 per acre for the other 2½ acres. In 1850 the streams of Lowell were bordered with 33 mills and it became the principal cotton manufacturing center in the United States.

The ever growing cotton manufacturing industry called for greater complements of power. Another important factor had forced its way into the cotton industry, that was the need and demand for greater capital. In the early days of 1812 it took but a little capital to start a cotton mill; but later millions of dollars were required which meant the combined wealth of many. In 1839 ten companies had invested $9,300,000. To engage in the industry then meant more than building mills and buying machinery. It meant establishing the necessary requisites for the welfare of the help, such as houses, stores, churches, etc.

A Typically American System

It is interesting to note how the two types of mill systems, those established under the Francis Cabot Lowell ideas and ideals and those under Samuel Slater in Rhode Island, differed and prospered. Slater had a clear field from 1790 to 1814 and his influence was supreme. Slater introduced into his establishment the old paternalistic system of English manufacturers, employing whole families. Slater also brought into his system the payment of kind rather than money. He established a company store and issued checks good at that store only.

When the Lowell mills were established those early founders built into them the system of Francis Cabot Lowell's ideas and ideals. The physical, social, moral and religious welfare of the operatives was looked after and schools and churches were built. An attempt was made under Kirk Boott's somewhat paternalistic government to dictate the policies of the church, but the Yankee independence of right to religious worship stopped that right away and no public attempt was made aside from encouragement given to religious instruction and worship.

It is said that Slater established the first Sunday School in America, but the girls of Lowell built their own churches, organized their own debating society and even published a paper called the "LOWELL OFFERING" without direction from their employers. The factory owners safeguarded the morals of the help in the boarding houses, but aside from this the workers were responsible for their own actions.

I think we may all feel sure it was well for New England manufacturing that Slater's factory system did not root very deeply. You all know the early successes of English yarn over American, the reason being that the fine yarns of that time were spun on mules that required male help of high grade, but in New England female help predominated. Here I want to call attention to the kind and character of female help in our Massachusetts factories in those early days. In England, a girl mill worker was looked down upon and it was a stigma to be known as a mill girl. In Massachusetts, however, the best young women of the community were encouraged to work in the factories. About the only good thing Dickens said about our country in his "American Notes" was in regard to his visit to the Lowell mills and the high tribute which he paid to the girls there.

Industrial Cities Grow Fastest

That the cotton industry has had great influence in molding the life of the New England cities and towns cannot be doubted. Moreover, there is no doubt that the character and growth of these cities were quickly changed by the establishing of the cotton industry. Its influence on American life is conceded to be the attraction which drew large numbers to the cities in which these factories were located. It needs no argument to prove this. Before the signing of the Constitution of the United States, only seven cities in America had populations of more than 8000 people. They were Philadelphia, Boston, New York, Salem, Charlestown, Baltimore, and Newport—all seaport cities—and had attained their growth through commerce. Philadelphia alone had any manufacturing and when this became prominent, Philadelphia shot rapidly ahead of Boston. Philadelphia maintained this supremacy until the opening of the Erie Canal, when New York City took first place by reason of its great commercial advantage.

During 90 years, from 1730 to 1820, the population of the cities showed very slow gain, but beginning in 1821—with manufacturing to help—this population grew rapidly and has continued ever since. This rapid growth, however, was simply a shifting of population from suburban to the urban. These people were Americans. However, the limit was soon reached in native stock and the manufacturer had to look to the foreigner for help. With such help came many problems.

The life and spirit of the early founders of the city of Lowell (Moody, Jackson, Appleton, Boott, Worthen and others) whose names are perpetuated in many ways, left an indelible impress upon the city and their just and earnest methods with the help, aided by Francis Cabot Lowell's ideals, produced an influence that still remains.

Industry's Contribution

The time was once when a corporation was called "soulless." There is no place in the industrial or economic life of today for such, and communities in which industries exist must suffer or thrive on the perception and conception of the managers. No large industry is a success today without its proper equipment for looking after the physical and mental needs of the operator. It's a tough proposition, I will admit, to remold and remake some of the lives that are a part of the organization and, yet, we are using these human beings and they are in our keeping. They didn't choose us—we chose them.

The cotton mills in my own city have made much valuable contribution to all the construction and upbuilding agencies and the life of several is dependent on the support of the mills. Our mills also maintain a splendid hospital and the only one of its kind in the world, so far as I can learn. All collectively contribute to its support and any operative may be taken care of free, if necessary, with the best of skilled physicians and nurses.

A large and finely equipped textile school caters to the mental and technical needs of any who may desire to share in its gifts. This school has grown beyond the fondest dreams of its founders.

The Coming of Foreign Workers

The cotton mill community today is more changed than is the industry which gave it birth. We may well look at Lowell as a fair example of such a change.

In 1830 only four years after Lowell had received its name, only 10 per cent of its population were aliens and ten years later when Lowell was incorporated as a city, only about 12% were aliens—but note the change and ponder the results, at this date, when over 90% of our mill operatives are foreigners and 75% are born in other lands than English speaking. Over 40 nationalities are represented on the payrolls, and the day school enrollment shows the same, while in the evening schools some 30 races are represented—a veritable kaleidoscope of human beings with all the colorings of customs, habits, and languages, understandings and misunderstandings that come with such a mixture. It is the Tower of Babel again set up.

There is a colony of over 20 thousand Greeks clinging to their own habits and customs, mingling only with themselves. We find some 30 thousand French Canadians, who have been assimilated into our civili-

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zation, and having been under the government of England have quickly adopted our ways. They have become a strong, active and interested part of the city's life. I name these two nationalities to emphasize my illustration of the great changes which the early founders could not foresee and did not have to contend with.

The Human Problem

The problems of the early founders were more of a mechanical nature. The human element came from New England homes in which the foundations of moral character had been firmly laid. This character was easily appealed to and readily responded to good influences and suggestion. The Community today is a complexity of perplexing problems and the managers of the industries of today need all the wisdom and genius that science can give to the human mind, coupled with the Divine Spirit, to make their work successful. There are more problems to be solved now in a single day than came to the early founders in a year. So long as they have "problems" there is hope—for a problem signifies that there is a solution.

We are beginning to learn that we are in a large measure our "brother's keeper," and we are beginning to realize that we can not do just as we choose with our own life and property where the lives of others are concerned.

The organization of industry has had the natural result of a much closer and extended organization of society and we find community and industry dependent on each other. This dependency has extended to the whole world and obligations are multiplied as the industrial relations are more closely knit together.

The Solving of the Problem

This obligation is being fully realized by manufacturers today in my own city, Lowell. The splendid support given by the great cotton mills and other manufacturers to all the various agencies for the moral, physical and spiritual uplift of the entire community is sufficient evidence of it. They have contributed thousands of dollars to the various agencies among which are the Young Men's and Young Women's Christian Association, The Lowell Guild, and various welfare organizations, and I know the same is true in other cities. The founding of the Lowell Textile School without doubt the best of its kind in the world, was the outcome of deep interest in the future of the operatives by the modern men of vision, many of whom are with us today, while we hold in memory the names of many others who have left as monuments their great contribution to the communities in which they lived and served and the industries they managed so well.

Lowell doubtless would still be a farming community and its fields resting quietly beside the waters of the Merrimack and Concord Rivers had it not been for the keen vision of Worthen, Moody, Jackson and Lowell and others, who transformed New England and especially Massachusetts, so that the world looks with wonder and amazement upon the achievements wrought in the hundred years of its history. Faith did it. And are we to abandon the great heritage left us by our fathers? I am sure we are not whatever may be the problems and changes. I am sure and confident that these great industries are woven so securely in the life fabric of New England that the present day problems will be solved.

We look back with longing sometimes to the "good old days," but you and I know, that notwithstanding the changes that have taken place, progress marks the pathway all the way.

The close relation between employer and employee is gone, insofar as personal contact is concerned, and cannot return; but notwithstanding all this, human sympathy remains and is dispensed in greater measure than ever before, and communities are lifted onto higher planes by the effort of the men of vision of today. Each nationality with us must work out its own salvation. With the opportunity afforded, to which our large industries contribute so much, they will be lifted to a level with our own people and their own national tendencies will be lost by intermingling with us.

I know that the most satisfactory events in our lives to look back upon and remember will be those efforts made in turning out better human material for the world's welfare.

The Railroads and the Industry

By *Gerritt Fort* *

IT IS a privilege to discuss with members of The National Association of Cotton Manufacturers the relation of transportation to that industry. It is also a responsibility, for both industries are facing problems which call for clear vision and straight thinking. Some of these problems, but by no means all of them, are aftermath of the World War.

While I appreciate that your organization is national, I would like to open my remarks with some comment on the situation in that favored section of the country in which this convention is being held.

In New England approximately 30 per cent of the cotton produced in the United States and nearly seven-eighths of the foreign cotton imported into this country is manufactured or processed, and the region contains, or did contain in the recent past, 47.5 per cent of the total number of active cotton spindles in the United States. The vital interest of the railroad I represent in the industry will be apparent when I say that on our rails are cotton manufacturers who probably carry on their payrolls in normal times 150,000 or more employees, and whose average yearly freight payments are rising $7,000,000.

Relation of Rates and Prices

In considering some aspects of the relationship of the transportation industry to cotton manufacturing, let us deal first with the transportation of the raw material.

A study recently undertaken by the Bureau of Railway Economics for the purpose of developing the relationship between the prices received by the cotton producer and freight rates to representative mill centres and principal points of export, tends to show,—

That the freight rate is relatively a small percentage of the price of cotton even on the long-distance hauls, is not a controlling factor in the determination of prices, and does not retard its freedom of movement.

* Vice-President, Boston & Maine Railroad.

Cotton prices during the period of the study varied widely from week to week although with a few slight exceptions the freight rates remained stationary; these variations, in most cases, were many times the total freight rate to market.

During the calendar year 1923 the weighted average farm price as reported by the Department of Agriculture in the issue of "Weather, Crops and Markets" for December 29th of that year was $27.80 per hundred pounds. During the same year the average freight revenue as computed from the preliminary reports made by the principal cotton carriers to the Interstate Commerce Commission was 66 cents per hundred pounds.

According to the Department of Commerce, the total cotton ginned in 1923 was 10,159,498 running bales, and according to the Department of Agriculture the valuation of the cotton crop, cotton lint and seed, in 1923, was $1,769,000,000 an increase of $463,000,000, the increase being nearly ten times the total freight revenue received by the railways for the transportation of cotton, cottonseed and its products, except oil.

For the period from August 17 to December 28, 1923, the freight charges on Texas cotton shipped to Fall River, Mass., represented 6.4 per cent of the lowest price and 4.4 per cent of the highest price From Texas points to Greensboro, N. C., the freight charges represented 5.9 per cent of the lowest price and 4.1 per cent of the highest price. From Georgia to Fall River, the freight charges averaged slightly in excess of 4 per cent of the lowest price and slightly in excess of 3 per cent of the highest price, while the freight charges on cotton from the producing to the manufacturing points within the boundaries of Georgia averaged something like 2½ per cent of the lowest price and about 1⅓ per cent of the highest price. In every case included in the test the fluctuation in the price of cotton exceeded the total freight rate.

The foregoing facts show clearly that the demand for cotton, and not the freight rate, is the controlling factor in determining the price which the producer receives since he sells his product either at the plantation or at the point of ginning and the ultimate destination is almost always determined subsequent to the sale.

Notwithstanding these obvious facts we find representatives in both branches of Congress contending that

Gerritt Fort, Vice-Pres. Boston & Maine R. R., Speaker at Thursday Morning Session

the salvation of the cotton planter depends on a reduction in freight rates.

Reciprocal Duties

The transportation charges on the finished product are at least of as great importance as the rates on the raw material and present, from the standpoint of the carriers at any rate, questions of greater complexity. The constant commercial struggle for supremacy in the consuming markets of the country brings a demand upon the railways and steamship lines from the manufacturing centres for the equalization of freight rates by setting distance at naught in their construction. I believe that the transportation interests have met this demand to the greatest possible extent; perhaps to a greater extent, in some instances, than a prudent policy of rate making would warrant. I think it is a fair statement to say that it is the duty of every carrier to aid the manufacturer located on his rails by so adjusting freight rates to the common markets of the country as to assist the manufacturer the greatest consistent extent in meeting his competition. These rates should represent the cost of the service and a reasonable return to the carrier.

I have said that the carrier owes a duty to the manufacturer, and this implies a reciprocal obligation from the manufacturer to the carrier.

Auto Truck Increases Freight Rates

Let us consider briefly whether the New England manufacturer is meeting this obligation. In 1923 the total registration of commercial vehicles in Massachusetts was 83,505, an increase of approximately 593 per cent over

1915. We are not in possession of complete figures for the other New England states for corresponding periods but it is safe to assume that the increase is relatively the same.

One of the best patrons of the commercial truck is the cotton manufacturer. Now, my vision is not so narrow as to prevent me from seeing that if the truck is able to furnish better transportation facilities than can be furnished by the railroad at equal rates, or equal facilities at lower rates, the railroads cannot expect to hold their business. The truck represents a natural economic development, and for short distances can, in many instances, supply cheaper and more convenient transportation than the railroads are able to offer, but a large part of the goods now being transported over the highways could be handled by the railroads more economically and with reasonable efficiency, and the cotton manufacturer should not delude himself with the belief that in aiding the building up of two transportation agencies where one is serving, or can be made to serve the purpose, he is escaping responsibility for this economic waste; he must inevitably sustain a substantial part of the cost.

The truck can only be used for relatively short distances and New England industry must always depend on the railroads for long-haul transportation. By reason of the public interest with which railroads are effected they have always performed and must continue to perform a considerable service from which it is impossible to obtain an adequate return. If the truck is allowed to skim the cream of the profitable short-haul business railroad rates on the remaining traffic must of necessity be so constructed as to make up the loss.

A Possible Remedy

You may well consider whether it is the duty of the manufacturer, in New England or elsewhere, not only to use the railroads in the transportation of his goods to the greatest extent consistent with good business methods, but to use his voice and influence in procuring laws which will require motor transportation to pay its fair share of the cost of constructing and maintaining highways and also to place common carrier motor vehicles under the same forms of regulation that the public has decreed are wise in respect of the railroads.

Act Inspires Confidence

Before concluding I want to allude to a few—by no means all—of the current problems of the railroads which I believe that your organization can help to solve.

The Transportation Act of 1920, which was designed in part to repair the ravages of the war, but also to correct the results of years of repression by State and Federal regulation, to re-establish railroad credit and to create a national transportation system, is generally regarded in railroad circles, and I think by all who have given study to the transportation problem, as a wise, statesmanlike and constructive measure.

It has been in effect for less than four years and during most of that time the conditions under which the railroads have operated have been abnormal. Immediately after their return to private control came a period of feverish activity and a resultant volume of traffic with which the railroads, their facilities impaired and weakened by the period of Government control, were unable to cope. Then came a season of depression, and then coal miners' strikes and threatened and actual railroad strikes which have seriously hampered the production of transportation.

Notwithstanding these drawbacks the railroads have functioned in a manner to inspire public confidence rather than blame and today are giving the best service in their history, which means in the history of the world.

From January 1st to October 20th, 1923, the latest period for which I have authentic information, the railroads handled the largest freight traffic in their history in any similar period. Over forty and a half million cars were loaded in those 42 weeks as against thirty-four million, two hundred thousand in 1922, about thirty-two million in 1921 and thirty-seven million in 1920.

A larger number of new locomotives and new freight cars have been put in service since January 1, 1923, than in any similar period during the past ten years. Much progress has been made in reducing the number of locomotives and cars awaiting repairs, and today the power and equipment of the New England railroads were never in better condition.

Much of the credit for this satisfactory condition is to be attributed to the confidence inspired by the Transportation Act, which for the first time in the history of railway legislation placed upon the Interstate Commerce Commission the mandate of fixing rates, fares and charges which would, under honest, efficient and economical management, produce a fair return on the value of property devoted to the uses of transportation, that fair return being at present fixed by the Commission at 5¾ per cent.

The Transportation Weevil

This particular clause of the Act, 15-A, has been a subject of severe attack by the bloc statesmen at Washington.

The political demagogue is the boll weevil of the transportation industry. Like the weevil, he may have his uses. I understand that this troublesome insect has made the cotton planter more intelligent, and has brought about an interest in agricultural education; and that before the advent of the weevil, farmers would not attend farmers' institutes, nor read agricultural papers, but that when the weevil began to destroy their crops year after year, threatening to starve the people out of the country, the farmers began to study and adopt better methods. So with the transportation boll weevil. By putting the railroads on the defensive he has probably made for more effective and intelligent operation. At least let us hope so.

Guarantee Merely a Limitation

It is contended that railroads have been guaranteed a fixed return on their property. It that were so, the Government would today owe the railways a billion or more dollars, since they have fallen that much short of earning the fair return established by the Commission. The so-called guarantee is merely permissive and is a limitation rather than a guarantee since it fixes the maximum amount which the railways may earn if they can. Far from earning the so-called fair return, the Boston & Maine Railroad, for example, has earned a deficit since its property was returned to its owners of approximately $12,000,000, and the New Haven Railroad, the other large New England carrier, has shown about the same distressing results. Some of the reasons for this condition are peculiar to New England and it is not my purpose to discuss them here. The results of the Boston & Maine for the first quarter of 1924 showed an improvement of approximately four million dollars over the corresponding period in 1923, and if Congress will let the Transportation Act alone we may cherish the reasonable hope that the complete year will show a much more satisfactory relationship between gross earnings and expenditures. For ten years the Boston & Maine Railroad has not paid a dividend on its common stock and during that period nearly fifty million dollars has been put back into the property in permanent improvements and in making transportation safe and convenient. The shippers and other users of the property have enjoyed these facilities but the common stockholder has not had one penny of return on his investment, and the preferred stockholders have fallen far short of receiving the return to which they are entitled.

Another measure proposed by Senator LaFollette should have special mention because its purpose is to reduce the rates on agricultural products, including cotton, agricultural implements and fertilizer, to the level of the rates of 1914. This bill is still before the Senate Committee on Interstate Commerce. It is estimated that if it became a law it would have the effect of reducing the revenue of the New England railroads by approximately $12,000,000 annually. No comment is necessary on the effect which this would have on the provision for adequate transportation facilities.

The members of this Association can be helpful by counselling their representatives in Congress to let the Transportation Act alone until it has had a fair trial under normal conditions.

Recent Textile Research at M. I. T.

By *George B. Haven**

THE rapid advance of industrial development in this country in the last three or four decades has been the combined result of three important factors: first, an abundant and certain volume of raw materials; second, a labor supply which, though full of social and economic difficulties, is still of unquestioned skill and variety; and third, effective and scientific manufacturing processes. It is with the latter that this paper has chiefly to do.

The successful manufacture of any great commodity, whether it be textiles, machines, or food, must be carried out along the lines of sound and direct principles. Haphazard methods and circuitous routes between the raw material and the finished product are things of the past. The problem of every manufacturer is to transform the raw material as directly, accurately and economically as possible into the finished article.

In processes as complicated and numerous as are those involved in textiles, it is natural that questions will arise in very great numbers which must be answered accurately and finally before new methods and more direct processes can be successfully adopted.

Mill vs. Laboratory Research

We must never lose sight of the fact that the greatest research laboratory of all is the manufactury itself, whether it be the mill, shop, or other industrial plant. Many questions arise which can never be correctly answered unless carried out upon a scale and under the practical conditions which the mill alone can afford. This is especially true of interrelated processes where the mill as a whole must prove or disprove the answer to its own questions.

On the other hand, there are numerous research problems which can be carried out more successfully with the refinement and exactness of a laboratory than otherwise. The microscope will often show at a glance chemical and mechanical properties which it would cost a large amount of time and money to determine otherwise. Such research questions are relatively small in number, but their correct solution is of very great commercial importance. Such questions can frequently be best answered by taking them out of the manufacturing process and isolating them under exact conditions in the laboratory.

In this direction the Massachusetts Institute of Technology has sought, especially during the last eight or ten years, to answer numerous research questions, in no way seeking to supplant the mill or the textile school in their own field.

Among the numerous studies made

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n textiles recently the six following ones are chosen as typical:

I. Moisture Surveys.

II. Rate of Moisture Regain in Various Fabrics.

III. Measurements of Fabric Porosity in Felts and Ducks.

IV. Measurement of Crimp and Take-up in Weaving Processes.

V. The Development of a Constant Load-rate Textile Testing Machine.

VI. Abrasion and Flexure in Fabrics.

Moisture Surveys

The part which moisture plays in textile manufacture, especially in cotton, is no longer a question but an assured fact. For accurate size in yarns, satisfactory and economical manufacturing conditions and the resultant uniformity of product, atmospheric conditions in a textile mill must very generally be artificially maintained by automatic appliances for this purpose. Very many mills thus controlled have found convincing results in the qualities above mentioned. The accurate determination of the amount of moisture present at various stages in manufacturing processes requires the use of an automatic electric oven and refined balances for weighing. The Institute has made numerous of these tests for private individuals, returning a plot with full detail of the exact moisture condition of the product. The samples for such determinations must be small, viz., within the capacity of fine balances, and must be sent from the mill to the laboratory hermetically sealed. It is not possible to get results of any value if the samples are sent through the mail, even though carefully wrapped in waxed paper. The best way is to take a sample of about two ounces in weight from each important process in cotton manufacture, uniformly distributed between the cotton bale and the cloth-room. These should be immediately sealed, either in glass capsules or presstop tin containers. They may then be sent without undue haste to the laboratory and of course must be weighed, container and all, just as received. The accuracy should be to the nearest hundredth of a grain, in order to secure three significant figures in the percentage results. After subtracting the tare weight of the container, the moist cotton is carefully transferred to the basket of a textile oven and, after drying three or four hours at a temperature of 220 to 230 degrees Fahrenheit, the bone-dry weight is determined. Subtracting this from the moist weight will, of course, give the amount of water present. The term "regain" has been officially defined as the percentage which this water indicates relative to the bone-dry weight. The term "moisture content" is used to indicate the percentage of moisture in terms of the actual or natural condition. It is evident that the latter percentage varies with the chance condition at time of the test, while the regain is based on a constant value, namely, that of the dry product.

In many processes, due to the manipulation of the fiber, the moisture which may have existed in the bale or may have been artificially added in the form of an emulsion, is rapidly dissipated. Frequently, therefore, yarns and finished fabrics are nowhere nearly in their supposed condition regarding moisture.

Rate of Moisture Regain

The necessity of conditioning fabrics and yarns prior to tests for strength or weight is no longer doubted. The question therefore arises as to how long it is necessary to hang fabric specimens or yarn skeins in standard atmospheric conditions before they will arrive at substantial equilibrium. It is a well-known fact that gauzes and light cotton fabrics will pick up their fill of moisture in half or three-quarters of an hour and remain uniform thereafter. Tire fabrics and heavy belting ducks, however, require much longer intervals of time to come to balance regarding moisture. The question has very often been asked of the Institute, "What is the least interval of time in which I can reasonably expect my peculiar fabric to come to condition?" To solve this, a study has been recently made of the definite rate at which a wide variety of fabrics pick up moisture, starting from a bone-dry state. This, of course, gives the maximum amount of time under the most adverse conditions that would ever be necessary to condition a fabric. An instrument, known as a "regain scale" was constructed in such a manner as to read directly the percentage of regain in the fabric at intervals of time determined upon a stop watch. Plots were constructed in terms of the elapsed time and the regain for a variety of fabrics and yarns, ranging from very light to those of medium weight. The plots illustrated the fact that in light fabrics almost all the regained moisture is collected in the first twenty minutes or half hour of exposure and that one hour is a sufficient interval for any average fabric to attain its final weight.

Porosity in Felts and Ducks

The openness or closeness of texture in many mechanical fabrics is of considerable importance. This is especially true of felts, filter cloths, sail duck, and wing fabrics. A good sail duck, for instance, should be strong, light in weight and as impervious to air as possible. A felt or filter cloth, on the other hand, should have for its purpose a definite amount of porosity. In the case of some fabrics the medium of filtration is water instead of air. It is very difficult to carry our experiments in water porosity upon finished goods because of the harm done to the finish itself by the passage of water through the fabric. About two years ago a long series of experiments was performed by Messrs. Wilson and Taylor of the Institute research staff, showing that, at least for heavy felts, air and water porosity were in very direct proportion. The advantage of using air instead of water is, of course, that the finished fabric could be thus tested without injury. To this end a machine for measuring the air porosity of papermaker's wool felts was recently designed, constructed and delivered to one of the research contracting concerns at the Institute. It consists of a heavy U-shaped frame, carrying in its lower member a high pressure pneumatic clamp. On top of the machine is mounted an electrically-driven blower, giving a range of air pressure from zero to six pounds. A vertical air tube carried on trunnion axes is supported by the upper frame directly over the pneumatic clamp. In the air tube is on orifice plate with a U-tube attached in such a manner as to give the pressure drop across the orifice. The pressure which builds up upon the back of the fabric when clamped in the machine is indicated on an inclined gauge and recorded by means of a Bristol recording gauge. Since at low pressure the amount of air passing through an orifice is in very approximate proportion to the pressure drop through the orifice, a determined volume of air may be forced through each fabric of a series, the back pressure then being a measure of the relative porosities. This machine has been installed about one month and, we understand, is giving very satisfactory results to the owners. We are at present extending, by means of special apparatus, the principle of this machine to the determination of sail-duck porosity and other fabrics.

Measurement of Crimp

Some seven years ago Mr. E. D. Walen, at that time chief of the Textile Division, Bureau of Standards, Washington, D. C., proposed a method and piece of apparatus whereby the deviation of yarns from a straight line as they rest in the fabric could be measured. It consisted of a rigid standard at the top of which was a small clamp for holding the upper end of the crimped yarn. To the lower end was attached a light scale pan in which a progression of weights could be placed. A measuring scale behind the yarn and a light vernier attached directly to the yarn made it possible to read elongations in hundredths of an inch. Of course the object of such an instrument is to determine the amount of weight necessary to straighten the yarn but not to stretch it. If a yarn thus marked off while resting in the fabric is, say 8 in. long, after removing the crimp the length might be 9 in. The inch thus obtained from straightening the yarn divided by the original fabric length of the yarn would indicate the crimp as 12½%. It is perfectly evident that most mechanical fabrics, exclusive of belting possibly, should be "square," namely, in order to resist rupture from an external force the threads in the warp and filling should share equally in resistance. Such a condition can only be obtained when the fabric is "square," *i. e.*, the deviation from straightness in the warp and filling threads is equal. If a plot is carried on with the determination in the Bureau of Standards apparatus, a curve, growing gradually steeper and finally merging into a straight line, will indicate the behavior of the crimped yarn. Such a plot is usually made with the scale weights as a vertical and the elongations as a horizontal coordinate. When the curve reaches the point where it becomes a straight line the yarn is naturally stretching with pure elasticity. If now a tangent be drawn to the curve prolonging the straight portion to the axis of the elongations the length of the straightened but not stretched yarn will be determined, and by coming up to the curve and over to the axis of weights the total weight of the scale pan may be determined which is necessary to straighten but not to stretch the yarn. The amount of this weight has been determined at the Institute for a wide variety of yarns. For 11/23s square woven tire fabric yarn, it has been officially defined as 75 grams. Of course it varies with every different character of yarn. It is frequently desired to determine the relation between the original and roll width of fabric in the loom. This may be found very approximately by measuring the crimp as described above in the filling threads as they rest in the fabric. For this purpose a piece of apparatus much like that used at the Bureau of Standards has been constructed at the Institute. Instead of the scale pan a very light wire basket is used and for scale weights 1½ in. lengths of fine steel wire are found to serve very satisfactorily. The wire lengths are piled into the basket, for very light yarns one or two at a time, and for heavy yarns five or ten at a time. By means of a glass and fine index wire the elongations are read directly against the scale in hundredths of an inch. A plot is carried on simultaneously with the readings and, as soon as the elasticity law is determined, the tangent described above is drawn and its stretch length noted. In this manner yarns as fine as 60s have been measured for crimp in the fillings of shirtings, crepes, and very light twills. Knowing the roll width of the fabric and assuming that the shuttle threads are straight in front of the reed the reed width may be calculated with fair accuracy.

Development of Testing

It has long been known that the speed with which the pulling jaw applied the load in textile testing machines had a considerable influence upon the apparent tensile strength of the material. A series of tests run under very exact atmospheric conditions at the Institute, in a vertical testing machine of the usual type upon eight-ounce cotton duck and paper makers' wool felts, gave a variety of results differing by a margin of from 10 to 20 per cent, depending upon the speed of the pulling jaw. A speed of 12 inches per minute has been declared standard and is widely used. Unhappily, however, this does not solve the whole difficulty. Textiles do not break like homogenous ma-

Just at the Moment

needless to say, we are sustaining our proportion of the burden of the temporary business depression

However, the volume of orders we have received during the last twelve months has been more than gratifying.

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terials such as iron or steel. In the latter all the fibers at a given cross-section are ruptured by the test. Textiles are made up of numerous fibers interlaced and at rupture a certain portion are broken, while a larger percentage are disentangled and slip by one another without breakage. When one considers this fact it is perfectly evident that the element of time plays a very important part in the apparent strength of any textile. To make this statement more concrete, a vertical fabric testing machine, set up in the usual manner with a jaw speed of say 12 inches per minute, might rupture a steel tape in five seconds. A piece of balloon fabric might consume eight seconds, a piece of belting duck ten seconds, a piece of tire fabric fifteen seconds, and a piece of paper makers' felt might require twenty seconds in breakage. The above specimens of steel tape and fabric might be so chosen in width and material as to be of precisely the same gross tensile strength when tested under a quiescent or dead load.

From the above it is evident that the elasticity or stretchiness of the specimen determines the time elapsing between the application of the load and the instant of rupture. A very stretchy specimen will consume many seconds before rupture takes place, while a steel tape with its characteristic rigidity would be broken in a very short interval of time. Therefore, to carry out accurate tests upon textile materials, some form of testing machine should be devised in which the elasticity of the material exerts no influence upon the rate of application of the load.

A very large percentage of all the machines used at present consist of dead weight or pendulum machines. A pendulum is nicely pivoted upon ball bearings. The upper end of the pendulum is bound to a cylindrical drum around which a chain is wrapped. The lower end of the chain is pinned to the upper jaw. The lower jaw is attached to a screw and nut, the latter being actuated by a gear train in such a manner as to give a speed of the pulling jaw of 12 inches per minute.

Of course if the jaws were rigidly connected by, say, a steel specimen, the full speed of the pulling jaw would be immediately transferred to the drum and through it to the finger on the dial. It has been proposed by numerous writers upon this subject to define the fastest rate at which a rigid specimen could possibly cause the reading to reach a given figure as the "machine rate of loading." This could be made constant for a rigid specimen and might be, as proposed, 250 lb. per inch of movement of the upper jaw. On the other hand, the rate at which the load was actually applied to a given specimen, depending as pointed out above upon its stretch, would vary widely with the different character of specimens. This has sometimes been defined as the "fabric rate of load" and is indicated by the load imposed upon the actual fabric per unit of distance travelled by the pulling jaw. The fabric rate of load cannot be expressed as pounds per inch or pounds per second since it would presumably vary widely between two specimens of the same fabric. At present, machine rates of load vary from 60 to 500 lb. per inch of travel of jaw while the fabric rate of load would easily vary three or four hundred per cent with the character of the various fabrics tested. It is therefore evident that, while such conditions exist, there must be wide discrepancies in the apparent strength of textile materials and any effort made to eliminate such difficulties should command immediate and careful attention.

Constant Load Machine

A new type of testing machine has been perfected by Mr. Henry L. Scott. At the top of a rectangular frame are provided heavy ball bearings for the trunnion axes of a tilting beam. The latter moves with very little friction and is nicely balanced so that it can be made to swing through certain angles promptly and with negligible internal strains. The tilting beam provides an inclinable rectilinear track along which roll heavy cast-iron disks. These disks constitute the load element of the machine and are yoked to a chain which runs over a guide pulley and downward in a vertical direction to the upper jaw. When the tilting beam is horizontal there is naturally no pull upon the jaw chain. As the inclination of the beam upon its trunnion axis increases, the component of the disk weights increases similarly and produces a greater and greater pull upon the upper jaw. If it were possible to swing the tilting beam to a vertical position the full weight of the disks would be thrown upon the specimen. The weights, at all times, are free to travel down the inclined plane which the tilting beam constitutes, but the pull on the jaw chain depends simply upon the angular inclination of the tilting beam. In the event of a rigid specimen the disk weights would remain near the top of the inclined plane. With a stretchy specimen between the jaws, the weights would automatically assume a position farther down the inclined plane. Provided, however, that the angular inclination of the beam was the same in the two cases above mentioned, the pull on the specimen would be identical. The adjustable lower jaw of the machine is wholly stationary and merely holds the lower end of the specimen. By means of the upper jaw the load is applied in the manner described and, by measuring the inclination of the beam, the amount of the load may be determined. In this manner the stretch of the fabric is automatically taken up and the fabric rate of load may be made uniform and of any desired amount, whatever the character of the fabric.

This machine has been experimentally developed at the Institute in part at least and, while its first form is complicated and cumbersome, it is being redesigned in a much simpler manner and with very many less parts. Experiments made upon this type of machine show that a portion of the variations in the apparent strength of textile specimens is due to unavoidable characteristics in the pendulum type of machine. The constant load-rate machine gives more even results for a given fabric since it imposes the load with perfect uniformity whatever the elasticity of the specimen may be. It is hoped before long to have this machine in a novel and thoroughly practical form.

Abrasion and Flexure in Fabrics

Numerous queries come to the Institute as to the relative durability of fabrics. This difficult problem has been studied from many angles and the solution of it is not yet by any means complete. A new machine has been recently constructed in the Textile Laboratory in which a combination of abrasion and flexure may be applied to a fabric specimen. It consists of a hard steel blade 3/16 ins. thick, the upper edge of which is rounded to as perfect a semicircle as possible. The specimen of the fabric to be tested is folded over this rounded blade 180°. The blade is given a vertical oscillation of six inches whereby it rubs the surface of the fabric and with each abrasion folds the fabric through 180°. The fabric is in the form of an unraveled strip specimen and is given a tension equal to its weight in ounces per square yard. After abrasion and folding to the number of some thousandths, the specimen, raveled to one inch in width, is tested for tensile strength. The reduced tensile strength compared to its original value is a measure of the resistance of the fabric to abrasion and flexure.

Fluidity or Viscosity of Starches

By *W. A. Nivling.**

AS the terms "fluidity" and "viscosity" are used somewhat interchangeably to denote one of the service qualities of starch, a brief explanation of these terms and of methods used for measuring them should be of interest to the textile manufacturer. The description which follows is offered for the purpose of clearing up and answering some questions that the textile manufacturer brings up in discussing his sizing problems, either within his own organization or at conventions with others having similar interests.

Fluidity

Fluidity expresses rate of flow. As applied to starch solutions used for sizing or finishing, the term fluidity is used as an index or measure of the readiness or freeness with which the so-called starch solution will flow through the pipe to the machine where used. It determines also whether the starch solution will penetrate into the recesses or be merely pasted on the surface. Fluidity is one measure of service quality.

Viscosity

Viscosity denotes the adhesive quality. A solution that is not viscous, is not adhesive. Viscosity may be defined as the reluctance to flow, or the resistance that one particle of a liquid meets in flowing past its neighboring particle. It is the clinging property of a liquid, and determines the amount of sizing that will adhere, for it must be understood that a solution may be very concentrated and freely fluid, and yet in the sizing operation will not adhere to yarn in satisfactory amount, unless it is viscous. Viscosity is measured as relative mobility but is more accurately defined as stickiness or gumminess in contra distinction to mere thickness.

Viscosity obviously will vary with concentration or percentage strength. It is, however, a property of liquids quite aside from and independent of concentration. Viscosity is, therefore, not at all dependable as a measure of the concentration of starch size conditions but it is a decidedly valuable measure of the sizing quality of any starch solution. Unfortunately at the present time the same instruments are used to measure both viscosity and fluidity. Present day viscometers do not, therefore, definitely distinguish between these two properties.

Comparison of Qualities

Fluidity indicates convenience. Viscosity indicates service quality for a particular need. As an example: The service value of lubricating oils is dependent primarily upon viscosity (in special cases high fluidity is also necessary). Highly viscous oils or greases are necessary for lubricating heavy slow-moving journal bearings, but for high speed journal bearings a high degree of fluidity is essential in order that the oil may flow freely and quickly to the point where it is needed. The need of both fluidity and viscosity is evident.

Oils are characterized by being viscous but not adhesive; salt solutions in general by being neither viscous nor adhesive; starch solutions by being both viscous and adhesive.

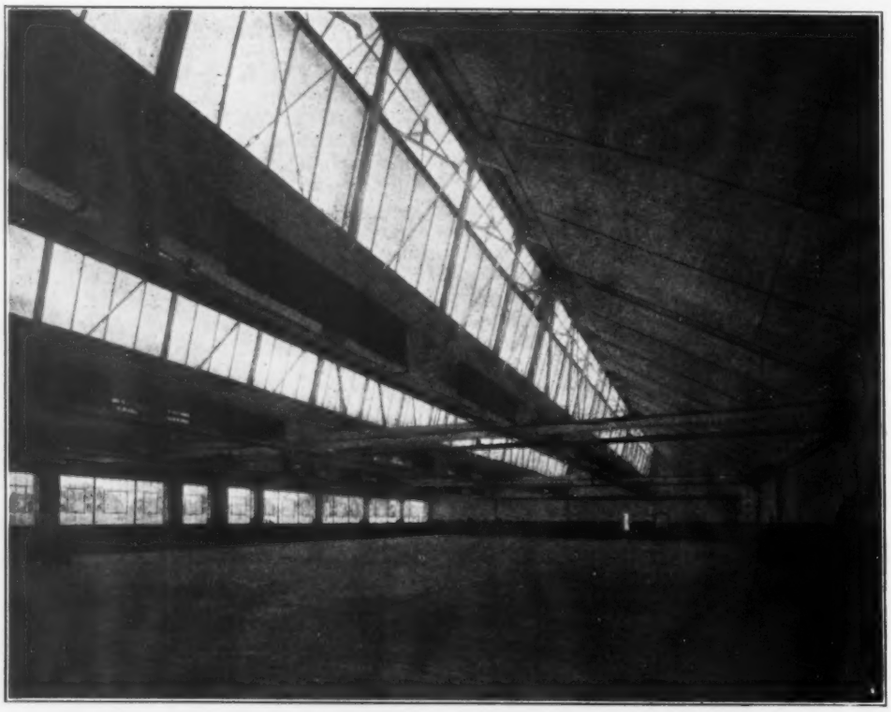
With lubricating oils fluidity is obtained at the sacrifice of viscosity, but with starch solutions note that by using highly modified starches increasing the concentration of the solution, viscosity and adhesive value may be increased almost without limit without changing fluidity.

Measuring Viscosity or Fluidity

Viscosity and fluidity measurement are relative and are compared with the viscosity or fluidity of water. The rate of flow (fluidity) or the adhesive quality (viscosity) is generally measured by one or the other of two types of viscometers.

In one type of viscometer, a comparison is made of the time required

* Huron Milling Co., Boston.



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for a specified volume of liquid to flow through a tube of small diameter, and the time required is compared with the time required for an equal volume of water of the same temperature to flow through the same instrument. These may be designated as flow type viscometers. As temperature affects viscosity measurement it is absolutely necessary that comparative tests always be made with the fluids at the same temperature.

Samples for Fluidity Test

Starches are bought in dry powder form and must be weighed and dissolved to make them fluid for the test.

The residual moisture of starches may vary from practically none to twenty per cent, or more, the starch sample must therefore first be tested to determine the moisture and due allowance made for the water content. The samples must then be accurately weighed with proper allowance for the water they contain dissolved in the proper amount of water. Solution may be affected either by heating or by the addition of chemicals. If chemicals are added to the water used for dissolving the starch, the proportion of chemical must be accurately measured.

Another factor of great importance to be reckoned with is that so-called starch solutions are never true solutions. They are really mixtures of partially dissolved starchy matter in suspension in that portion of the starch which has dissolved. Furthermore, the suspended and undissolved portion is of skeleton-like structure. These skeletal forms impede the flow of the starch solutions, and too vigorous stirring of the sample under test will break up this skeletal structure, change the rate of flow, and thereby affect the results. Care must, therefore, be exercised and even the amount of stirring must be regulated. There are several methods of preparing the sample for the viscometer test:

A 5 per cent or 10 per cent solution of starch, according to whether the starch be thick boiling or thin boiling, may be made by heating the starch with water until it is dissolved under conditions that may be duplicated. This method more closely approximates the condition under which the starches are to be used than the method next to be described.

Another method, one that uses chemicals for dissolving the starch is given in the "Journal Society Chemical Industry 1907," page 501; see also the originator's book, "The Materials Used in Sizing, their Chemical and Physical Properties," by W. F. A. Erman, of the Manchester School of Technology, from which the following is taken:

"Three-fifths grammes of starch are washed into a 250 cc. graduated flask, with the aid of 230 cc. of cold distilled water. Fifteen cc. of exactly 10 per cent sodium hyproxide solutions are then rapidly run in from a burette, and the flask is filled up to the mark with distilled water and is shaken gently, but continuously, until the starch has gone into solution, after which it is allowed to stand for twelve hours. Finally, the viscosity of the solution is measured in the viscometer."

Amount of Stirring

Note Erman's further instructions as to control of chemical and of amount of stirring; I quote as follows:

"In order to obtain concordant results, the strength of the caustic soda solution should be exactly 10 per cent, as even a small variation will give a different viscosity. Every time that a delivery of starch is to be compared with the standard, solutions of both standard and delivery should be tested.

"The solution should at all times be agitated as little possible, and the solution that has run through the viscosimeter should not be used again. A small rise in temperature causes a considerable lowering of the viscosity; consequently care must be taken to ensure constant temperature during the time of the tests."

The above makes clear why it is difficult for two different operators to obtain the same results on starches. Each operator may be able to get duplicate and concordant figures which enable him to form accurate conclusions as to the similarity or dissimilarity of the several samples of starch, but the same sample of starch tested by two different operators may not give the same test figures. They may have used different methods and different instruments. It is evident, therefore, that the starch manufacturer must surround his tests with every aid to precision or he cannot deliver successive lots of starch, of uniform fluidity or viscosity.

What Figures Mean

The same instrument and the same method of determining viscosity might be used by every starch manufacturer or every chemist, but even if this were so, which as a matter of fact it is not,—the arbitrary features of manipulation, as for instance, the stirring of the sample, may give somewhat varying test figures. The point to be borne in mind is that the same operator, working under the same conditions, will get the same results.

Fluidity or viscosity figures are, therefore, arbitrary expressions, and must be compared to a type. The figures denote measured relative freeness of flow.

To sum up the foregoing note then that "30 Fluidity" on a brand of starch means

(a) That a given volume of liquid will flow in 30 seconds.

(b) That in a specified unit of time, 30 cubic units of liquid will flow.

The same applies to other figures used, such as 50 fluidity, 70 fluidity, etc.

All such figures are arbitrary and refer to the reading given by a particular measuring instrument and a particular routine of procedure. Water will show a different figure for each instrument. Such figures should be recognized as arbitrary viscosity or fluidity figures, applying only to the specific instrument and the particular set of conditions used for preparing the sample. Arbitrary viscosity figures do not admit of accurate comparison.

Specific viscosity figures are obtained by dividing these arbitrary figures by the figures obtained for the flow of water under the same conditions in the same instrument. Specific viscosity figures do not admit of accurate comparison.

Viscosity Constantly Changing

Starch solutions are unstable. There is a continuous change of the very important property of viscosity due to change of temperature, to chemicals added to the size kettle and

W. A. Nivling, Speaker at Technical Session

to greases and size compounds used. First let us consider the nature of starch itself.

Starch grains are the reserve material formed by many plants and stored up as food for later use in feeding the new growth of the succeeding plant. Starch is a condensation product from the sap of the plant, coming originally from carbon dioxide chemically combined in the plant by the action of sunlight. The amount of condensation in changing the liquid sap to the reserve material, starch, differs in different plants, and in the same plant under different conditions.

Starch is a cellulosic reserve material stored in the seeds of some plants, in the roots of other plants, and, oddly enough, we find in the sago palm, the starch is deposited in the tree trunk. The starch that forms in the seeds differs in appearance and in behavior from the starch that forms in the roots of plants. Note the variation in the size of the starch granule from the same source and also from different sources.

Composition of Granules

While grains of sand or grains of chemical substances like sugar, salt, etc., may be uniform throughout, with starch grains such is not the case. Each individual starch granule differs throughout. The outer wall is more condensed than the inner portion, and behaves differently. Starch granules are stratified. By that is meant there are layers that are soluble only with great difficulty and there are layers that are easily soluble. Every granule is surrounded with an outer layer or envelope of difficultly soluble material known as amylopectin, and an inner portion that dissolves easily. The inner portion has been given various names, but for convenience it will be referred to in this description as amylose.

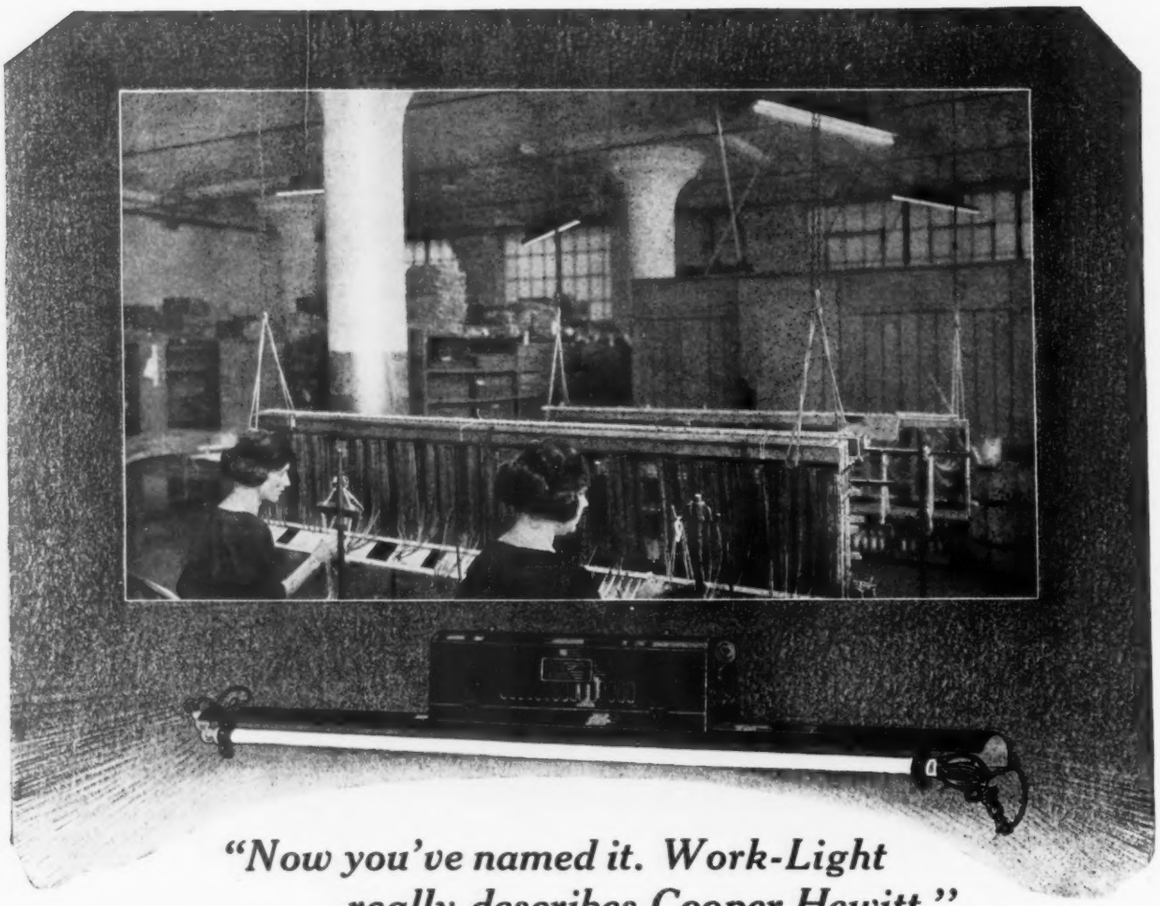
This inner substance, amylose, is soluble in cold water and makes a relatively permanent clear colloidal solution. The outer portion and the more condensed portion of all starch granules, amylopectin, not only does not dissolve in cold water but forms either no solution at all in boiling water, or at best only a partial solution with boiling water, and as the temperature falls below that of boiling, more and more amylopectin goes out of solution. This may be shown by boiling a very weak solution of starch in water and letting the solution stand. There results a settling out of the undissolved portion. This is at first difficult to see as the portion that settles out is almost transparent, but after longer standing it becomes opaque.

Just here it is of interest to note that the bulk of this precipitate which settles out from starch to which water has been added and heated, varies with different starches, and that the bulk of the precipitate that settles from say a 1 per cent solution of potato starch differs from the bulk or volume of the precipitate that will settle from a one per cent solution of wheat starch, rice starch, or corn starch. This has been investigated by Harrison who has shown that the measure of bulk of these precipitates may be used for determining the stiffening power of different starches.

When starch granules are suspended in water and the water heated to 140° or over, the granule begins to swell. The outer envelope is penetrated and the granule swells to several times its original size. The water enters and dissolves the inner substance, amylose. If a portion of the liquid be examined under the microscope, the swollen and burst but undissolved envelope or outer sac, which previously covered the starch granule, will be seen floating in the syrupy starch solution of the inner substance, amylose. By repeated washing with water and allowing the empty sacs to settle and pouring off the top water these two portions, amylose and amylopectin, may be separated, the top water carrying the soluble part, amylose. The sediment will be amylopectin.

Effect of Sacs on Fluidity

In starch solutions of over 2 per cent these cell sacs will, if examined



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through the microscope, be seen to occupy such a percentage of the space as to crowd each other, thereby affecting the flow. The bulk of these sacs varies with the different starches and also with the same starch at varying stages of maturity.

The viscosity of a starch solution is in large part fictitious. By violent agitation either by continued vigorous stirring or by long boiling, these sacs are broken down and the viscosity thereby lessened. A large part of the "running down" of starch size solutions is obviously due to agitation. In the thick viscose starch solutions used for sizing, the change or lessening of viscosity is gradual or rapid in proportion to the density and thickness and also to the violence of the agitation; and further, in proportion to the time and temperature to which the starch mixture has been heated.

Starch size solutions suffer much greater thinning if repeatedly passed through pumps of the centrifugal type than if passed through pumps of the rotary or plunger type. Therefore, because of their churning motion, centrifugal pumps should not be used for the continuous circulation of size.

Differences in Starches

It is characteristic of the root starches, like arrowroot and potato starch, and also of sago starch, which happens to be neither a root starch nor a seed starch, that their solutions lose viscosity by boiling very much more rapidly than starches from the cereals, barely, rice, wheat or corn.

All starch solutions are at their maximum viscosity in from 15 to 60 minutes after reaching the boiling temperature. After having reached their maximum viscosity the starch sizing solutions become thinned by continued boiling or other agitation, primarily by reason of the cell sacs being broken down. After these are all broken down the further loss of viscosity will be very gradual unless chemicals are present or water enters the vessel from the steam used for boiling.

Maintaining starch solutions at or above the boiling temperature will increase the amount of starch that goes into solution and therefore adds to the adhesive quality. It will, however, lower the viscosity and therefore the amount that will cling to the yarn, thus necessitating a fortifying by increased percentage of starch or by adding something of a viscous gummy character to increase the viscosity.

Adding New Size to Old

Where a newly made batch of size is to be added to that already in service, they should not be mixed together in the size box. Notwithstanding the proportions of starch to water may be the same, the two solutions will differ widely in viscosity. They should, therefore, be blended in by adding the new to the old in a blending kettle, and the combined new and old size should be continuously added to the size box rather than intermittently. This avoids a sudden or wide change in the viscosity and thereby keeps the amount of sizing applied to the yarn more uniform and even.

Temperature for Sizing

The natural or unmodified starches differ widely, not only in respect to their sensitiveness to thinning by long boiling, but also in respect to their rate of congealing when the temperature of their solution falls below that of boiling.

Some starch solutions when of the density and viscosity suitable for sizing lose their fluidity and set to a jell state immediately upon a fall of temperature from boiling to 180° F. to 160° F. Other starch solutions at the same concentration will remain fluid for a much longer time, even though the temperature be reduced to 150 or to 130. This difference in behavior in the natural or unmodified starches is due primarily to variations in percentage of amylose to amylopectin.

High Temperature Important

It was stated previously that the amylopectin of natural starches forms only a partial solution even at the boiling temperature, and that when the solution temperature falls, a large part of the starch granule goes out of solution. The size in the size box may be boiling and have a temperature of 210 to 212, but by the time it leaves the nip of the last squeeze roller the temperature may have fallen to 170 to 160 or lower.

This is of moment in connection both with loss of fluidity and also of adhesive value from starch going out of solution at the lower temperature. Obviously then that starch will yield the best sizing, which, while its solution is sufficiently viscous and concentrated as to apply a sufficient amount of sizing to the yarn, yet will congeal so slowly with fall of temperature as to remain fluid at the low temperature of the last squeeze rolls.

It is the author's judgment that the size should be kept at the boiling temperature, but violent boiling should be avoided. Violent boiling robs the size of viscosity. What is desired is the high temperature of boiling and just enough agitation to keep the size rolling over so that the temperature may be as nearly uniform as possible in all parts of the size box.

A size box jacketed by boiling water so as to hold the temperature, and by this indirect method of heating avoid the water of condensation resulting from the direct injection of steam, would be a decided improvement in slasher equipment. The advantage of hot water over steam in the jacket is that hot water will not cause scale formation, which is almost unavoidable where steam is used in the jacketed size box.

Sub-normal Temperatures

Some have recommended sizing at temperatures below that of boiling. In our opinion this is of questionable benefit. Starch size at 160 to 180 is inferior to size at 205 to 210, except that it has a higher viscosity at 170 than at 205, and less agitation from boiling results when size is kept at the lower temperature. The lower temperature, therefore, admittedly conserves viscosity. It is, however, preferable to obtain this added viscosity from an additional amount of starch rather than by sub-normal temperature.

Penetration

Contrary to the generally accepted theory, the application of starch sizing to yarn is really a superficial deposition of the starch size upon the surface of the fiber, rather than a penetration into the core or substance of the yarn. There is little, if any, penetration of size between the fibers of the yarn reaching toward the center of the yarn and certainly none into the fiber itself.

There is, however, much of fundamental importance to what is generally spoken of as "penetration." Penetration so-called is in reality a flowing of the size into the pockets of the fibers on the surface of the yarn and a levelling off of the surface, just as a good paint or varnish if it congeals slowly will level out and cause the brush marks to disappear. In like manner a slow congealing size will level itself to a smooth surface, and by flowing into the recesses will bond itself better to the yarn.

If, on the other hand, the size is insufficiently boiled and not freely fluid and sets to a jell too quickly, poor sizing and consequently poor weaving is the result. The anchorage of size is therefore in no case assisted by rootlets, if for the purpose of illustration we may use the term rootlets of size, extending between fibers to the core of the yarn. The anchorage is dependent upon the size flowing into the pockets of the surface fibers.

English cotton mills formerly fermented wheat flour and by fermentation brought about two results. Fermentation not only separated the starch and destroyed the gluten, but it also brought about a thinning action and also gave slow congealing size, greatly improved as to adhesiveness and smoothness when dried on the yarn.

Thin-boiling Starch

In the use of solutions of starch for sizing, two extremes must be avoided; one, the too-thick size which will not flow and can only be pasted on the high spots or surfaces of the yarn; and the other extreme, that of too great fluidity which on account of lack of viscosity will not adhere to the yarn in sufficient amount to give a film of sufficient thickness to resist the chafing during the weaving of that particular style. Solutions of the modified or thin-boiling starches are both more fluid and slower congealing than those of the unmodified or crude natural starches.

If starch granules are left to stand in a weak acid solution for a time, the viscous character is wholly or partially destroyed, according to the strength of the acid, the temperature and the length of time. This change can take place at temperatures below that needed to burst the granule.

The acid penetrates through the outer amylopectin wall and thins or "modifies" the inner amylose. After this has acted for a sufficient time to effect the desired modification, the acid can be washed away or neutralized, and the modified starch may be dried. This dried, modified, or "thin-boiling", starch in appearance shows no change from the natural or unmodified starch. Methods differ, but in general treating starch with weak acids and then neutralizing or washing away the acid is what the starch manufacturer does in making thin-boiling starch.

Amount of Conversion

Thin-boiling starches are sold with brand numbers designating different fluidities. The starch manufacturer can by various processes so convert the starch that not only is congealing delayed, but by suitable conversion methods congealing may be entirely done away with, so that a solution of the usual sizing strength of from 10 to 20 ounces per finished gallon may be so made as to remain perfectly fluid and transparent, even when cooled down to room temperature of 70° F. They can be so converted that they will remain fluid and transparent for weeks.

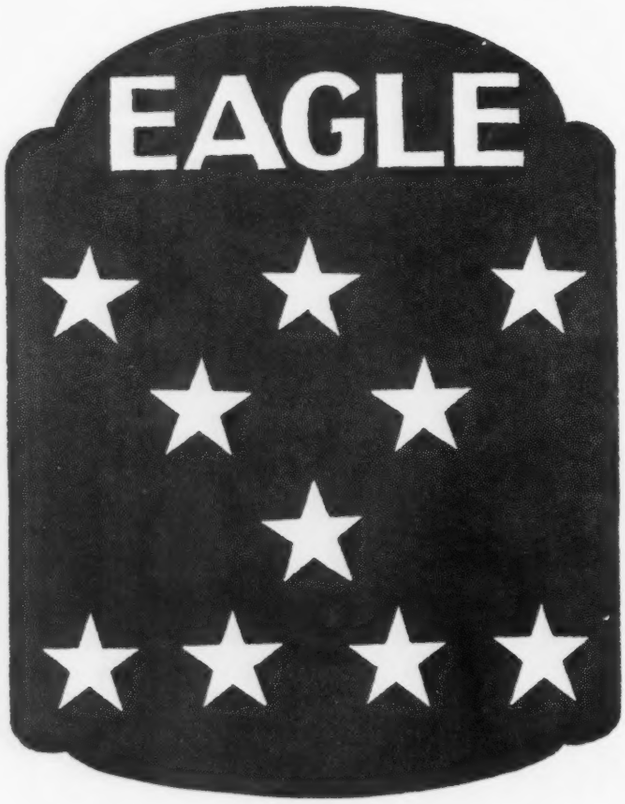
The fullest possibilities of conversion have not been brought to the textile manufacturer, partly because of higher cost, and partly because of his conservatism. In time these greater possibilities will undoubtedly be appreciated and made use of. The English method of modifying wheat starch by fermentation required several weeks but gave an excellent sizing, slow congealing, adhesive, yielding smooth well sized yarn.

Chemicals in Size Kettle

Starch is extremely sensitive to acids. Any trace of acid not removed by the manufacturer, or acid that may be formed by fermentation or souring, lessens the viscosity with extreme rapidity at the boiling temperature of the size kettles. Alkali, on the other hand, thickens the starch solution by dissolving a portion of the amylopectin. Certain chemicals other than acid and alkali, such, for instance, as zinc chloride or calcium chloride, affect the viscous character of the starch solution. This thinning effect continues as long as the chemical is present. The result is a continuing change in the viscosity or fluidity of the size.

In theory, it is possible to add certain chemicals to the starch in the size kettle and convert the unmodified, thick-boiling starch, to the more serviceable thin-boiling type, and save money by so doing. In practice this does not work out, for the simple reason that no set of conditions, such as percentage of chemical, ratio of water and starch, time, and temperature, all of which are important factors, can be positively controlled without the services of a chemist, and even if they were accurately controlled, the results would not be uniform, since different lots of starch react differently, due to variation both of maturity of growth of the starch granules and to impurities always present in the crude starches.

Starch



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TECHNICAL SECTION

Oil and Leather Cloths

Testing is a Thorough Procedure and Textile Manufacturers Can Well Consider Some Points for Their Own Benefit—Determining Weight, Thickness, Shrinkage, Stretch, Strength, Toughness, and Resistance to Moisture, Rubbing, Puncturing and Cracking—Specifications for Automobile Materials

By *James W. Cox, Jr.**

(*Continued from April 26 Issue*)

LEATHER cloth is largely used in places and under conditions that are most severe. To insure that the material has the necessary qualities it is most carefully tested in many ways. So thoroughly is this testing done by the leading manufacturers of this material that many textile mills can profit by considering and adopting some of the methods, particularly when the cloths are to be used for mechanical, electrical or industrial purposes in general. Naturally these tests vary in accordance with the use to which the cloth is to be subjected, and any one fabric may not necessarily be tested in all the ways described.

The method of selecting and testing the base fabrics, dyeing and coating materials for this type of impregnated cloth has been previously discussed in this article. The ways of testing during manufacture have also been considered. Therefore, this part will only take up the testing of the finished article.

Except when the cloth is used for some peculiar and particular purpose, a chemical analysis is not indicative of quality and means practically nothing, so the cloth is tested with physical tests representing the actual conditions to which it will be subjected in actual use. From these tests, then, can be had a true knowledge of the serviceability of any particular sample of material.

In the earlier days of their manufacture, before scientific methods were studied and employed, oil and leather cloths deteriorated or aged very rapidly when exposed to severe weather conditions, that is, the sunlight, wind, snow, ice, cold, heat, moisture, dryness, etc. These things yet affect the finished materials, but by careful tests and study, the life of the cloth has been greatly extended. Therefore the first tests to be used on this kind of material is the so-called "ageing" test. When cloth has "aged," either naturally or by artificial means, we can then compare and test it in the same manner as cloth direct from the factory, obtaining most valuable data for comparisons.

Ageing Test

The simplest and oldest method of ageing is shown by Fig. 20. The cloth was tacked or nailed on wooden frames, depending upon its thickness or strength, in both a taut and a loose manner. These frames were then placed on a roof or in a yard where they would be exposed to all kinds of weather conditions. At definite intervals of time certain cloths would be taken down, tested in all ways necessary, the results tabulated and comparisons made. Fig. 21 shows the

Fig. 20. An Old Method of "Ageing" Cloth

exposing of automobile top material to the weather. In this case the tops would be opened and closed at frequent intervals to approximate the conditions when on a motor car.

But these methods of ageing take from three months to years to conduct properly and in these times it is not practical to wait that long to find out the deterioration (if any) in the material, so artificial means of producing the same have been developed. Fig. 22 shows a box or cabinet where samples can be exposed as long as desired to the ultra-violet rays of a mercury-arc light. In this manner the effect of months or years of natural ageing is obtained in a few days.

The effect of heat and cold, with or without moisture, can also be quickly determined. In the former case, samples are placed in a conditioning oven, raised to and kept at any desired temperature, with any moisture content, for a desired interval of time, then gradually or suddenly cooled, conditioned to room temperature and moisture content and tested with "raw" cloth. As a general rule two hours at 150° F. will bring out whether or not the material "spews" or "sweats" when heated.

Certain cloths have been known to change materially at only a slight rise in temperature, others to resist quite a high temperature for a fairly long period. If it is necessary to know the cold-resisting qualities the same type of test can be made by means of artificial refrigeration. Immersing in water at various temperatures for stated intervals will give the deterioration, if any, from this cause.

With samples of any material in the new state, as well as aged for various lengths of time, the various physical comparisons and tests can then be made and very accurate and dependable results be ascertained. The general appearance as to color, luster, dullness, brilliance, smoothness, harshness, softness, finish, pliability, rigidity, etc., can be visually compared to actual samples and judged from experience in the manufacture or use of the cloth in question.

The analysis of the gray cotton fabric used for any cloth in question, whether it be sheeting, drill, twill, sateen, etc., or a combination of any of these, is not of import, as it makes no difference to the consumer of the leather cloth what gray fabric or fabrics, or even what impregnating and coating materials were used, if the final result is satisfactory. The maker of the leather cloth is the person who has to take that into consideration, this having been previously discussed in this article.

Fig. 21. Old Method of "Ageing" Automobile Top Material

Weight is the first thing to be considered. It is determined exactly as one would find the weight of an ordinary fabric; under ordinary weather conditions as a rule, or with 65% relative humidity at 70° F. in case of a dispute. It is most important to have the weight run evenly, not only from piece to piece but throughout the cloth, because if this varies it affects the quality in other ways hereinafter described. By making small weighings from different parts of any piece any variance in the piece itself can be easily checked. Even weight as a rule means an even thickness of material. This is readily determined by a micrometer caliper, preferably of the spring quick calculating type, as it is accurate enough for all practical purposes and 10 readings can be taken to one of the screw type.

For a specific purpose there is always a best base fabric to use, best impregnating and coating materials, and best weight and thickness. Once these are determined, standards can be set and a proper degree of tolerance allowed for variation from them. If these standards are rigidly adhered to, a better and more uniform quality of cloth can be made. Therefore it can readily be seen that uniform weight is of importance.

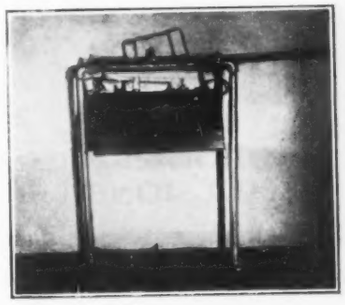

Fig. 22. "Ageing" Cabinet

Shrinkage and Stretch

The next thing to be considered is shrinkage, which is just as important for some uses of oil and leather cloth as for some uses of ordinary cloth. Use as automobile top material is a good example. The determination of this is a simple matter. A carefully measured square of cloth is immersed in water at warm or varying temperatures, taken out, allowed to dry naturally (or artificially forced to dry) and measured again. Thus the actual shrinkage is obtained and the percentage can be easily figured. Or the cloth may be placed in a moist place, in certain fumes, etc., dryed, measured and the shrinkage figured in percentages as above.

The stretch and breaking strength of the cloth are determined exactly as they would be for ordinary fabrics. Fig. 23 shows a regular Scott machine for this purpose. Tests are made, standards are ascertained, set

* Consulting Textile Engineer, New York.

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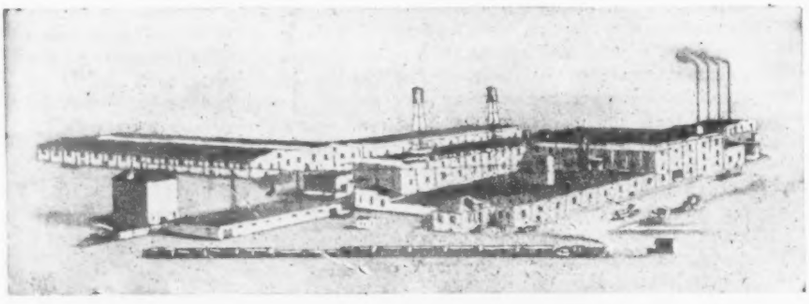

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and tolerances allowed as for ordinary cloth. The strip method, naturally not ravelled, is generally used. Strips are cut from the material both warp and filling ways. In

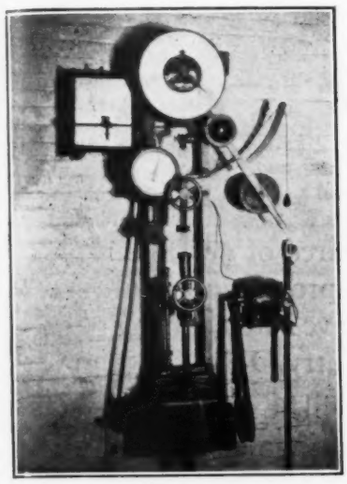

Fig. 23. Machine for Testing Stretch, Breaking and Bonding Strength

determining the stretch, jaws 1¼" wide are usually used, placed 3" apart and the machine operated at the standard cloth speed of 12" per minute. For breaking strength separate strips are generally used, set in 1" jaws, 1" apart and the machine operated at the same speed. The writer believes in this connection that operating the stretch and strength tests on the same basis would be productive of more accurate results, with less consumption of time and material.

A low percentage of stretch is almost always desirable and generally the amount is so small that it is almost negligible. In most cases the cloth will break before it will stretch to any degree. Strength, warp and filling ways, though important, is not as vital as one might imagine, because if the cloth has the other necessary qualities, particularly the proper weight and finish, the strength will invariably be more than sufficient. It is interesting to note that the impregnated material is usually far stronger than the base fabric of which it is made. Good grades of leather cloth are stronger than the corresponding real leather used for the same purpose. On the other hand, if once started, it tears more easily than either the basic fabric or corresponding real leather.

Many times it is necessary to produce a leather cloth of extra thickness, strength, rigidity, small bias stretch, etc. When this is required, two proper base fabrics are selected and cemented together before coating. Then when coated they will have the above mentioned qualities more than a single fabric could have. When stretched they will not appear stringy or streaky, will have more body, and the water resistance will be greatly increased.

It can readily be seen that the two base fabrics must be very firmly attached to each other. The degree of adhesion is termed the bonding strength. This is determined by means of the same type of strength tester as shown in Fig. 23.

The cloth is cut warp or filling ways as for a strength test, generally however in strips 8" to 12" long and exactly to a width, usually 1". The plies are carefully separated at one end, by means of a knife, for enough distance to allow each ply to be firmly and squarely clamped in the jaws of the machine. The lower jaw is then moved at the standard speed of 12" per minute and the pull required is registered on the dial. This will vary a little, but an average bonding strength can easily be ascertained. Fig. 24 shows strips before, during and after separation.

Resistance to Rubbing

In some places where this cloth is used it is subjected to rubbing or abrasion, in just the same manner as many ordinary fabrics. This is especially true when used as an

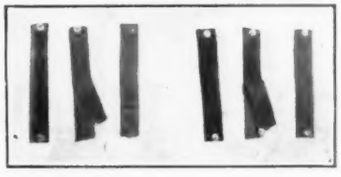

Fig. 24. Strips Used in Bonding Strength Test

upholstery material. The constant rubbing has a tendency to wear the coating off the fabric base, which cloth has comparatively small resistance to this kind of wear. Consequently if the coating rubs off, not only is the appearance, but the actual utility of the cloth very greatly diminished.

The apparatus shown in Fig. 25, gives the fabric to be tested approximately the same treatment as in actual practice. Two side stands are mounted on a heavy flat board. These support a cylinder (shown in white) in bearings. This cylinder can be given an oscillating motion by means of a crank arm connected to a shaft at the rear of the apparatus. The cylinder can be covered with any kind of material desired. Over this cylinder is placed a strip of the material to be tested, face (coated side) to cylinder. The strip is held by clamps as shown and a proper tension produced by weights. The cylinder is then operated 1,000, 2,000, 3,000 or any number of times and the result on the material noted. On a poor material, 500 oscillations or rubs may produce a noticeable effect; on a good material, 5,000 rubs may scarcely be noticeable. This test is very indicative of the wearing quality of the coating and hence the cloth in general.

The resistance to puncture by a sharp object of cloth, for example, that is to be used for automobile bodies, baby carriages, trunks, hand bags, etc., is most important. In order to scientifically and accurately test this record, compare and regulate results, a Webb tester is used. This device originally was for the most part used in the paper and paperboard industry, where resistance to puncture is an important factor. It works approximately the reverse of a strength tester; that is, instead of one part moving away from the other, it moves towards the other and the resistance is registered by a dial in the same way that pull is recorded.

The cloth to be tested is placed over the stationary part, which part has a hole in the center. The cloth is held firmly in position by clamping, both warp and filling ways. Directly opposite the center of the hole is the moving member, into the end of which is firmly placed a small metallic square foot. Fig. 26 shows the apparatus. By rotating the hand wheel, the moving part is slowly forced against the fabric and finally punctures it. As a general rule, a one-inch hole in the stationary member, with a ⅛" square foot, seem to give the best results and they approximate as nearly as can be the average kind of puncture which the fabric in question will have to resist in actual wear.

Fig. 26 also shows a quickly adjustable gage or micrometer caliper, previously explained, for measuring the thickness of the fabic.

Where the material has to be bent,

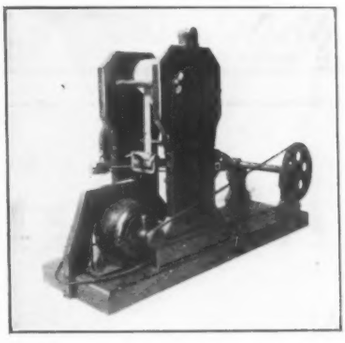

Fig. 25. Apparatus for Rub Tests

folded or stitched, the resistance to cracking should be determined, so that no trouble will be encountered by consumers of the material in actual use. To determine the resistance to cracking, the material is cut into strips, warp and filling directions. A strip is then taken and folded over with the coating on the outside. It is then placed in the apparatus shown in Fig. 26, the stationary part this time being a solid one and the moving part fitted with a foot one inch square. The machine is started, pressure is put on the cloth and the coating finally cracks. The pressure necessary to do this is registered on the dial.

Fig. 27 shows another apparatus, designed and made by one of the largest producers of leather cloth, to make this same test in a better, more delicate and accurate manner. It works on the same principle as the one shown in Fig. 26. Pressure up to 200 pounds per sq. in. can be determined by this apparatus. Superior cloths will easily withstand this, while inferior ones will crack at very low pressures.

Toughness of Coating

The weakest point in oil and leather cloth testing seems to be the

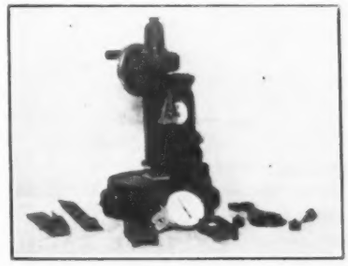

Fig. 26. Apparatus for Testing the Cracking of Materials; Also Caliper for Measuring Thickness

lack of a good method of measuring and determining the toughness of the coating. So far hand tests are used almost exclusively and as naturally no two persons will do it exactly alike, these tests can not be said to be as reliable and as accurate as the ones previously explained. A blunt instrument is sometimes drawn across the fabric, or strips are cut and folded, the coated surface to the inside, pressure exerted and then, keeping the pressure, slowly pulling the fold apart.

No general procedure or method has come to the writer's attention for determining the resistance to repeated bending. This is not important in all cases, but it is a factor in automobile tops, shoe coverings, etc. Undoubtedly this will be developed in the near future.

The adhesion of the coating to the base fabric is naturally a most vital factor in all instances. The old method was to peel or crack off with the finger nail, a knife, or some similar procedure. The same concern which developed the apparatus shown in Fig. 27 uses that device for obtaining the adhesion of coating in

Fig. 27. Another Type of Apparatus to Determine Resistance to Cracking

a more accurate and dependable way. As usual, 1" strips are cut each way of the cloth. These, however, are long. Near one end an "S" bend is made with the coated surface to the inside. A definite pressure in pounds is applied on this "S" bend by means of the two jaws. One end is fastened to a cylinder driven by the motor and the fabric is thus drawn out at a uniform speed. By changing the

(*Continued on page* 138)

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Processing of Short Foreign Cottons*

A Modification of the Modern Spinning System Using Multi-Coiler Cards—The Cottons for Which it is Adapted and Particulars of Conditions Under Which it May be Worked—Machine Settings, Speeds and Productions—The Slubber as Modified Roving Frame

By *J. Winterbottom, M.Sc.*

(*Continued from April 19 issue*)

SYSTEMS Nos. 5 to 11 all differ from Nos. 1 to 4, which are condenser systems. The former embody the modern principle of spinning, the drawing out of the cotton by its submission to the influence of at least three successive pairs of rollers in each of the machines subsequent to the card, along with any additional stretch which may be applied on the principle of the Systems Nos. 1 to 4. These rollers are operated at such speeds that each draws out, or stretches, the cotton a predetermined amount.

This difference in principle restricts the use of the systems Nos. 5 to 11 by confining them to those cottons possessing characteristics which are responsive in a satisfactory manner to the roller drawing effort named. For that reaon it is not expedient to employ these systems for cotton which is composed of fibres which are very variable in length or very weak, also if very short or dirty. These affectations of the cotton render the drawing action ineffective by causing irregularity in an uncertain measure. This influences the character and the output by the interruptions, breakages and the pollution which results. Hence, the material produced under the last-named conditions is of a low standard and usually uneconomical.

In effect the sets Nos. 5 to 11 are of a type distinctly different from 1 to 4, the latter being economically applicable in treating and making threads of restricted counts from cottons of any kind, while the former are applicable only to cotton conforming with the requirements of the rollers in the matter of the length and substance of fibres suitably responsive.

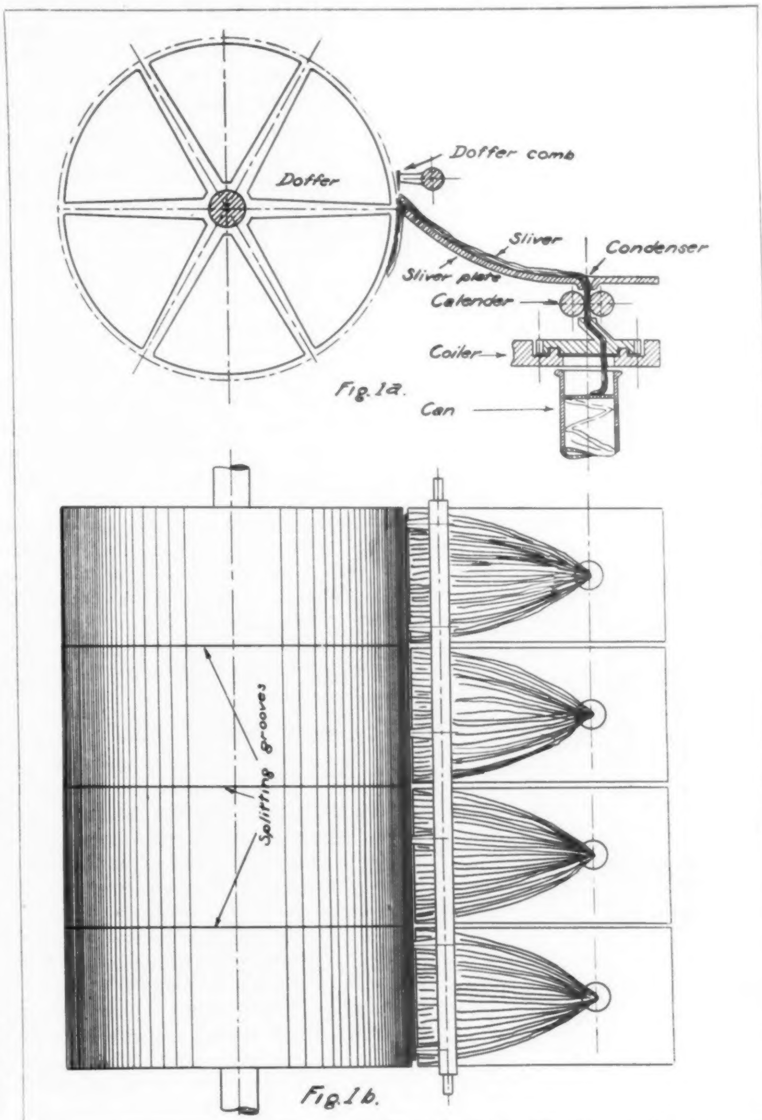
Description of Equipment No. 5

Equipment No. 5, consisting of mixing, opening and scutching cards with multi-coiler, slubber and spinning, is the least costly of any in the group Nos. 5 to 11. It renders its best service when confined to the production of counts ranging up to 16s, in low quality yarns amply twisted.

This set can be economically and conveniently operated in small or large units, or sets, on such work. Its special features are as follows: (a) The cards are fitted with the multi-coiler system; (b) the slubber is introduced for drawing-out the sliver; (c) the spinning machine is also fitted with rollers for drawing out the rove. The treatment of the cotton up to the card is that common to the sets already dealt with so that there is nothing calling for comment until the cotton is at the carding stage.

Multi-Coiler System

The card fitted with multi-coilers differs from the ordinary card in that it makes two, three or four slivers instead of one. This is accomplished by dividing the web on the doffer into the several portions named by any one of several ways which constitute the following general principle: The dividing of the web collected by the doffer is done either by using separating or splitting wires or by the use of narrow spaced rings upon the doffer. The latter, filling the smallest possible spaces, at the points where each division is required, prevents fibres collecting on this portion and thus a narrow void space makes the fibres distinct on either side of it.



Arrangement of Wires

The dividing wires, as an alternative way, are placed so that they project into the surface of the wire points of the doffer tangentially, and so cause the fibres to pass on one side or the other of the wire, thereby cutting through the sheet of fibres collected on the face of the doffer as it passes the active part of the wire. Such wires are placed at some point in the center or between the point nearest to the cylinder and round the under side of the doffer, where the web is taken off by the doffer comb. These are usually secured to a frame stretching across the machine in such a way that they can be adjusted if misplaced, or if a difference in the weight of the webs from the several portions makes correction desirable; one, two or three such dividing wires being necessary for two, three and four divisions respectively.

Thus the doffer web is converted into the number of divisions desired, and each of these as they pass from the doffer and doffer comb, is received upon a slightly inclined smooth sliver plate placed immediately in front of the doffer and below the comb. This plate is divided into four portions, each provided with a condenser mouthpiece, or trumpet, placed at a point sufficiently in advance to allow each ribbon to contract suitably before entering this mouthpiece which is the compressing unit forming the ribbon into a sliver. To pull the ribbon through these condensers the usual calenders are applied at a point

Multi-Coiler Card With Four Coilers

The feed, grains per yd.	7,000	7,000	7,000	6250
The feed, count	0.00119	0.00119	0.00119	0.00159
Delivery count complete	0.087 = 96 grs. per yd	0.116 = 72 grs. per yd	0.174 = 48 grs. per yd.	0.174 = 48 grs. per yd.
Delivery each sliver	0.348 = 96/4 " " "	0.463 = 72/4 " " "	0.695 = 48/4 grs. per yd.	0.696 = 48/4 grs. per yd.
Draft	69	92	138	104
Speed, Doffer 24" diam.	10	10	8	8
Production probable in lbs. per 10 hours	180	130	68	68
No. of machines to produce 2,000 lbs. in 10 hours	11	15	30	30

Slubber

The feed, grains per yd.	24	24	18	24	18	12	18	12	12
The feed, count	0.348	0.348	0.463	0.348	0.463	0.695	0.463	0.695	0.695
The draft	3	4	3	5	4	3	5	4	5
The delivery, grs. per yd.	8	6	6	4.8	4.5	4	3.6	3	2.4
The delivery, count	1.04	1.39	1.39	1.73	1.85	2.08	2.31	2.78	3.47
Speed of spindle r.p.m.	1000	1000	1000	1000	1000	1000	1000	1000	1000
Twist per inch	1.8	2.5	2.5	3.1	3.3	3.7	4.1	5	6.2
Probable production, lbs. per 10 hours	10	7.35	7.35	5.9	5.57	4.96	4.47	3.67	2.96
Machines to produce 2,000 lbs. in 10 hrs. spindles	200	270	270	340	360	404	448	546	676

Spinning – Ring Frame

The feed, count	1.04	1.04	1.04	1.39	1.39	1.39	1.73	1.73	1.73	1.85	1.85	1.85	2.08	2.08	2.08
The draft	5	4	3	5	4	3	5	4	3	5	4	3	5	4	3
The delivery count	5.2	4.16	3.12	6.9	5.6	4.2	8.6	6.9	5.2	9.25	7.4	5.5	10.4	8.3	6.25
Spindle speed r.p.m.	5000									6000					
Twist per inch	11.2	9.2	8	11.8	10.7	8.6	13.2	11.8	10.25	13.7	12.25	10.5	14.5	13	11.25
Probable production hanks per 10 hrs.	8.2	10	11.6	7.8	8.5	10.6	6.9	7.8	8.9	8.0	8.9	10.4	7.5	8.4	9.7
Machine Spindles to produce 2,000 lbs. in 10 hrs.	1280	830	642	1770	1320	794	2600	1770	1170	2320	1660	1060	2780	1890	1290

The feed, count	2.31	2.31	2.31	2.5	2.5	2.5	2.78	2.78	2.78	3.1	3.1	3.1	3.47	3.47	3.47
The draft	5	4	3	5	4	3	5	4	3	5	4	3	5	4	3
The delivery count	11.6	9.2	6.9	12.5	10.0	7.5	13.9	11.1	8.34	15.5	12.4	9.3	17.36	13.9	10.4
Spindle speed r.p.m.	6000			7000											
Twist per inch	16.25	13.7	11.8	15.9	14.2	12.3	16.8	15	13	17.7	15.8	13.7	18.8	16.8	14.5
Probable production hanks per 10 hrs.	7.2	8.0	8.6	8.0	9.0	10.4	7.6	8.5	9.9	7.25	8.1	9.3	6.8	7.6	8.8
Machine Spindles to produce 2,000 lbs. in 10 hrs.	3200	2300	1600	3130	2220	1440	3660	2620	1690	4280	3060	2000	[illegible]	3660	2380

Fig. 2. Particulars of Conditions Under Which a Multi-Coiler Set May Be Worked

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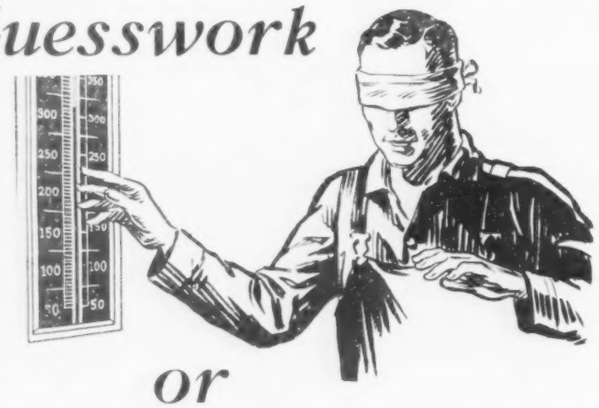
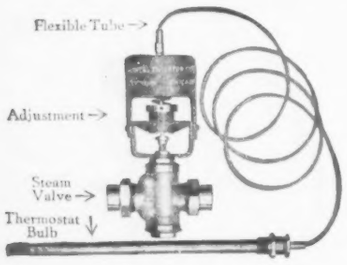
Guesswork



or Certainty—which?



THOUSANDS of dollars in Extra Profits due to
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What it does. Automatically keep the size at an accurate and uniform temperature which does not vary more than 1° above or below the temperature desired. The results of this very accurate control are thorough impregnation of the yarn which gives it added tensile strength. It saves steam and slasher tender's time. It positively prevents size from boiling over or cooling off so as to "skin over." It prevents overheating which thins size and permits "creeping" of the squeeze roll coverings, or "picking up" on the drying cylinder.

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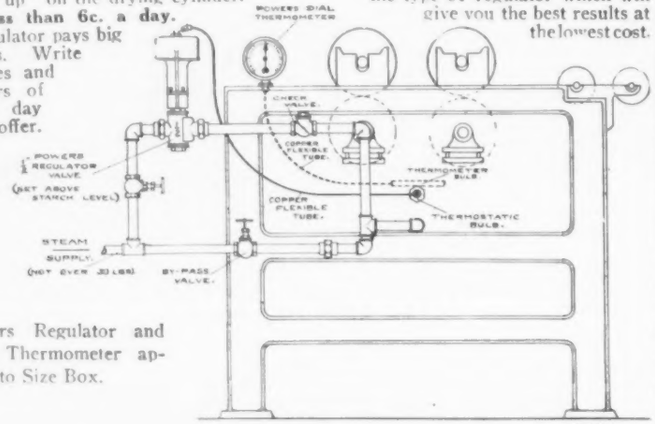

Powers Regulator and Dial Thermometer applied to Size Box.

(2848)

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as close to the exit of the condensers as is possible.

The cotton sliver, as it passes from these calenders, immediately enters the tube of a truncated wheel, known as a coiler, which coils the sliver as delivered into a rotating can placed to receive the same. (For the purpose of making this clearer refer to Figs. 1a and 1b.) Thus the two, three or four slivers are placed each in small cans 18 to 24 inches long and eight or nine inches in diameter, at one and the same time, ready for submission to the next process, the slubber, by the several parts as above stated, arranged co-extensive with a card frontage.

The count of the sliver which can be satisfactorily produced by this method is limited on the one hand by the heaviest sliver which the card can treat. This is probably under favorable conditions not more than two grains per yard per inch of width, or 96 grains for a 48 in. card. And on the other hand the lightest is probably 48 grains when the cotton is not too poor. Thus a four-coiler card would under these conditions make 24 grain slivers and 12 grain slivers as the heaviest and lightest per yard respectively. Under these conditions the rates of production as to length would be about 60 and 50 feet per minute, respectively, and 170 pounds and 68 pounds per ten hours, respectively. The coarser of these would be applicable to the production of 6s to 8s, and the finer to 12s to 16s, of a quality generally low, but varying according to the nature of the stock used.

Slubber a Modified Roving Frame

The slubber is a modified roving frame adapted to take its feed from the cans containing the specially prepared sliver from the multicoiler card. Designed to make a rove suitable for presenting to the spinning machine, the rollers are of such size and design as is most applicable for some particular class of cotton and work on which they are intended to be employed. Three pairs of rollers are used, these being generally 1⅛", 1", 1⅛" for the front, middle and back positions, for the long fibred cottons; and 1", ⅞", 1" for the middle qualities; and ⅞", ¾", ⅞" for the shortest fibre cotton.

It is not practical to use smaller rollers than the latter. It is not usual to employ this system for cottons exceeding 1" in length, although such is practicable. The latter sizes are the smallest practicable and in order to give the most effective results it is a good practice to have these rollers made in an extra small staff as such reinforces them consistently for the strenuous conditions of their working. The suitable staff would be 2 to 4 spindles for 10" lift bobbins, and 4 to 6 spindles for 8" lift bobbins. The extra roller bearings resulting from the small staff give the rigidity so essential and difficult to maintain in such coarse work.

The roving may be prepared in counts between 1s and 3s. The draft most applicable ranges from 2½ to 5, which suffices for the general purposes of such machines. The top rollers are of the leather-covered type, each weighted. The spindles are capable of speeds common to the ordinary roving frame, but in this class of work 1,000 r.p.m. is ample. The twist gear is devised to give a range from 1.5 to 3.6 turns per inch. The bobbins are sufficiently large in 8" lift and 3½" to 4¼" diameter of full bobbin. Low drafts are most applicable to low grade stock; high draft being only satisfactory with the very best of stock and high standard conditions generally.

The twist coefficient is usually on a much higher scale than common in the ordinary cotton system due to the more irregular conditions and to some extent to the lower stock used; it is generally from 1.4 to 2.0 times the square of the counts equalling twist per inch. The production varies very widely on account of the considerable

(*Continued on page* 140)

Oil and Leather Cloths

(*Continued from page* 135)

pressures, the coating is slightly rubbed or entirely stripped off and comparisons can thus be made of various samples.

Resistance to penetration of water, a very important quality, is determined by use of the Mullen tester. The rubber diaphragm is first removed and the well filled with water. The sample to be tested is placed, coated side to the water, and the machine operated in the usual manner. When the water comes through the samples, the dial can be read and the necessary pressure ascertained. By replacing the rubber diaphragm and using the machine in the ordinary manner the bursting qualities are determined as for any fabric.

It is desirable, of course, that a leather cloth be as little inflammable as possible. This quality can be divided into two parts; these are, resistance to ignition and resistance to burning after ignition. The method usually employed is to slit the material into long narrow strips, support at one end, then apply a flame at the other end and with a stop watch record the seconds and fractions thereof for both ignition and complete burning.

As in ordinary fabric testing, and for the same reasons, averages should be found by testing various places of many pieces and no conclusions should be reached by only a few scattered tests.

Purchase Specifications

Until a comparatively few years ago, oil and leather cloths were purchased in the same manner as ordinary textile materials; in other words, by the buyer's judgment based on appearance, feel of the fabric, past experience, the desires or foibles of the trade, or perhaps because of the particular persuasive powers or per-

sonal magnetism of an excellent salesman. The employment of textile materials for trade and industrial purposes and the growing knowledge of the buyer and ultimate consumer as to quality, gradually brought about more careful and methodical inspection in buying, and eventually scientific testing to determine the relative qualities of a particular fabric for a definite purpose.

This procedure developed in like manner in the oil and leather cloth industry, but probably more quickly and to a greater degree, because of the innate nature of impregnated cloth, and the uses to which it is eventually put, as well as the proven necessity for testing the base fabrics and impregnating materials used in the course of manufacture. This development of testing with the consequent setting of specifications proceeded slowly until the advent of the automobile. The huge quantity of material required for this purpose, the huge usage given it and the competition to make a cheap fabric of excellent appearance as well as long wearing qualities, brought about the determination and setting of certain specifications, particularly for the three most used materials in motor car manufacture.

It was soon apparent that in most cases the wearing qualities and good appearance of the top material, upholstery fabric and body cloth must be such as to last practically as long as the mechanical life of the automobile. Tests were made extending over a considerable period of time and standards set, which if the fabric could successfully meet, would show that it was a satisfactory product for the purpose intended.

Naturally no two leather cloth manufacturers produce a cloth exactly alike, although the fabrics on casual inspection may have exactly the same appearance, color and smoothness. Therefore, the checking to rigid and carefully set specifications is the only way to be absolutely sure of the real wearing qualities.

Table "A" gives the specifications of one prominent manufacturer for the three leather cloths most used in automobiles. It is safe to assert that if any fabric can excel, equal, or in fact nearly equal, these specifications it will be a most acceptable material for the purpose. Any fabric under consideration should be, if possible, tested after "ageing," either naturally or artificially, as well as when new. The testing should be done in the manner and ways previously explained.

In the first column of the specification table the name of the test is given, as well as how, and in what form. The requirements are tabulated in the separate columns for each of the three different types of material. In these columns it can be noted that a range or variation is generally allowed. If the average of a number of tests on different samples of the same cloth comes within these limits, there will be no doubt that the fabric is satisfactory insofar as that particular specification is concerned.

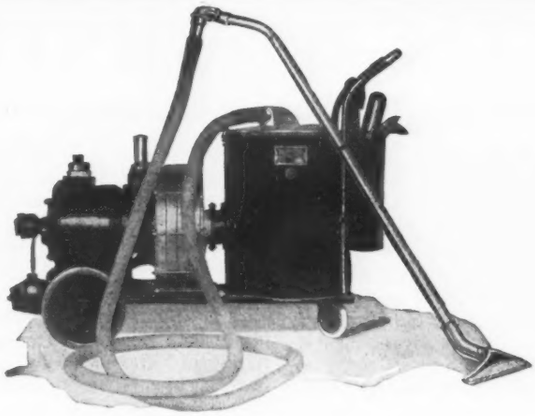
The order in which the tests are listed does not necessarily mean the order of importance, inasmuch as for automobile use all seem very important. For other purposes, however, some qualities are more vital than others and all these tests are not necessary. In drawing up specifications for any fabric, the use to which it is to be put must be always in mind as the prime consideration. Broadly speaking, it can be said that if any particular kind of leather cloth can pass the tests for automobile use it will be satisfactory for practically any other purpose to which it might be adapted.

(The author is indebted to the Standard Textile Products Co. for the illustrations accompanying this article.)

(To be continued)

Table A - Specifications for Three Automobile Materials.

Test	Top	Upholstery	Body
Tensile strength, warp-ways - lbs.	175 - 190	195 - 210	120 - 130
Tensile strength, filling-ways - lbs.	95 - 105	150 - 160	115 - 125
Weight per square yard - ozs.	20 - 21	23 - 24	22 - 23
Thickness - inches	.032 -.033	.032 -.033	.035 - .036
Toughness, warp-ways - scrubs	30 - 40	40 - 50	30 - 40
Toughness, filling-ways - scrubs	25 - 35	30 - 40	25 - 35
Resistance to abrasion - 2000 rubs	Slightly dull	O.K.	O.K.
Resistance to abrasion - 3000 rubs	Slightly dull	O.K.	O.K.
Resistance to abrasion - 4000 rubs	dull	Slightly dull	Slightly dull
Stretch, warp-ways, 20# pull - %	0.75 - 1.00	1.50 - 2.00	2.00 - 2.50
Stretch, filling-ways, 20# pull - %	1.50 - 1.75	4.00 - 4.50	4.50 - 5.00
Stretch, warp-ways, 40# pull - %	1.00 - 1.50	2.00 - 2.50	3.00 - 4.00
Stretch, filling-ways 40# pull - %	1.75 - 2.00	5.50 - 6.00	6.00 - 6.50
Stretch, warp-ways, 60# pull - %	2.00 - 2.25	4.00 - 4.50	9.00 -11.00
Stretch, filling-ways 60# pull - %	2.00 - 2.50	8.50 - 9.00	8.00 - 9.00
Adhesion of coating - lbs.	4 - 5	5	4 - 5
Bonding strength - lbs.	2.50 - 3.00	2.50 - 3.00	2.50 - 3.00
Resistance to puncture, warp-ways - lbs.	325 - 350	330 - 340	200 - 210
Resist.to puncture, filling-ways - lbs.	285 - 315	380 - 390	250 - 260
Resistance to water pressure - lbs.	80 - 120	200 - 250	220 - 240
Resistance to water for 48 hours - lbs.	O.K.	O.K.	O.K.
Shrinkage, warp-ways - %	1.00 - 1.50	0.50 - 0.75	0.75 - 1.00
Shrinkage, filling-ways - %	0.25 - 0.75	0.00 - 0.25	0.00 - 0.25
Weave of base cotton fabrics	plain & twill	plain & twill	plain & twill
Plain fabric, average cloth count	63 x 54	65 x 59	50 x 48
Twill fabric, average cloth count	64 x 37	108 x 46	70 x 68
Resistance to heat - 150 deg. F.	O.K.	O.K.	slightly tacky
Resistance to cold - 30 deg. F.	no cracking	no cracking	no cracking
Resistance to fire (burning) - seconds.	35 - 40	35 - 40	35 - 40
Cleansability - soap	O.K.	O.K.	O.K.
Cleansability - gasolene	O.K.	O.K.	slight effect
Dryness	Good	Good	Good
Flexibility	O.K.	O.K.	O.K.
Smoothness	Good	Good	Good
Surfacing	Good	Good	Good
Luster	Good	Good	Good



For a lowered stain percentage

One stain can undo the careful work of a dozen processes through which a fabric has been put. Helping keep soilage at low ebb is one of the functions of the Invincible Heavy Duty Cleaner. It isn't how much lint or dust you have in the mill — it's the way you get rid of it that counts. This powerful machine expedites cleaning, going over large areas quickly and thoroughly. It's influence is seen in improved products, less machine trouble and better employe morale.

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Invincible Vacuum Cleaner Mfg. Co., Dover, O.

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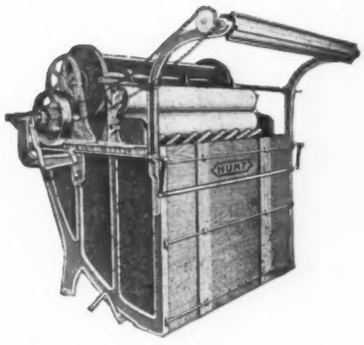

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20% Materials 50% Power
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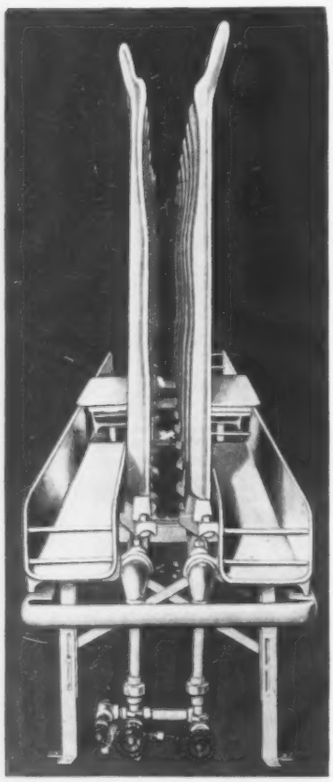
RODNEY HUNT

NEW MACHINERY AND PROCESSES

All-Metal Table

With Aluminum Troughs—The Angle-Base Attachment

Hosiery manufacturers will recognize the new table shown in the illustration, which has been brought out by the Paramount Textile Machinery Co., Chicago, as an advancement in the art of finishing hosiery. An analysis of its merits reveals many details of practicability that apply to the handling of the finest chiffons as



Paramount All-Metal Table with Aluminum Troughs

well as the coarsest grades. The table is all-metal and unusually durable in construction. It will render long service and improve the appearance of a boarding room. Arrangements can be made for exchanging present tables for this new type.

The troughs for carrying the unfinished goods are made of smooth, highly-polished aluminum, and all edges are rounded, thus eliminating possibilities of pulling threads. There are no pockets or square corners to collect dirt, hence troughs can be cleaned very easily with a moist cloth. Aluminum is non-absorbent and tarnish-proof, which permits changing from colored to bleached goods by simply wiping out the troughs, thus doing away with cloth or other covering materials. Wider troughs simplify the handling of the unfinished goods and these troughs are set in such a position that the stockings cannot dry out by coming in contact with the steam pipes.

The angle-base attachment is an important addition to Paramount features and it will prove of real assistance in securing quality work. This attachment enables the operator to see both sides of the stocking, resulting in better finished goods. The fact that visibility is attained on both sides of the stocking, without moving the form, is very important, inasmuch as the factor of rigidity which is so essential to rapid and efficient boarding is not sacrificed.

The operator is required to comb out the stocking tops with the palm of her hand instead of the fingers, thereby producing a better finish of the tops. The attachment permits the operator to work in a natural position when stripping the finished goods and also saves several inches in reach, which is important to boarders of short stature.

New Cotton Tests

For Thoroughness of Bleach and Identifying Fibre

By *C. F. G.*

New ideas and new tests on cotton are now of almost daily occurrence. Among the more recent is a single simple test for the thoroughness or quality of a bleach which can give at the same time information as to where the cotton came from.

Methylene Blue has often been used as a test for oxycellulose and therefore as a check on bleaching. It has recently been found at the laboratory of the British Cotton Industry Research Association that a more careful test, involving exact strengths and measurements, can be employed to show how far normal cotton bleaching has progressed. Methylene Blue is a basic dye requiring a tannin mordant for the full development of a shade on cotton. By itself, it is ordinarily said to have no affinity for cotton, although its solutions will slightly stain that fibre, and a still more pronounced color will develop if some form of mistreatment has converted some of the cotton to oxycellulose.

In the new test the small amount of blue absorbed by the fibre varies with the quality of the bleach; the better it is the less color is taken from the solution. Briefly, one method used in conducting the test was the shaking of two grams of the cotton for 18 hours with 50 cc. of Methylene Blue solution at a strength of about one-eighth gram per liter. The color remaining was compared with a standard solution and the amount of blue withdrawn was readily estimated.

Tests made after each step in a bleaching process showed a steady diminution from the gray cloth, represented by 2.16, through various processes to a final value of 0.57. A definite normal value can be established for a given kind of cotton, and taken as a standard for bleaching tests.

Different kinds of cotton have different normal values and it is a very interesting point that, even though bleached under the same conditions, Egyptian cotton absorbed a great deal more than the American, no matter whether the Egyptian was grown in Egypt or in Arizona. Sakellaridis consistently showed twice the figure for American cottons.

Some of the comparative figures obtained were:

Numerous American cottons	0.45 to 0.50
Brazilian	.61
Egyptian from Arizona	.76
Upper Egyptian	about .70
Sakellaridis Egyptian	.90

This is evidently a promising method for the identification of processed cottons in special cases. (Complete details are in the Journal of the Textile Institute, Vol. XIV., Page T 297.)

RECENT TEXTILE PATENTS

CLEARER, Revolving. 1,489,897. L. W. Penney, Newton Highlands, Mass.

DRAWING frame. 1,490,051. H. Wernning, Nordhorn, Germany.

DYEING of cellulose acetate, artificial silk, etc. 1,489,814. M. E. Bouvier, Lyon, France.

FABRIC roll end protector. 1,489,498. J. F. Leslie, Mishawaka, Ind.

FIBRES, Washing and degumming. 1,489,546. R. L. Pritchard, London, England.

FLAX, Method and apparatus for treating. 1,489,469. B. S. Summers, Port Huron, Mich.

KIER. 1,489,354. P. W. Kiernan, Lowell, Mass.

LET-OFF mechanism. 1,489,721. F. G. R. and R. Versavel, Roubaix, France.

LOOMS, Attachment for dobby. 1,489,514. W. S. Applegate, Mays Landing, N. J.

LOOMS, Shipper mechanism for. 1,489,611. J. Northrop, Hopedale, Mass.

LOOMS, Stop motion device for. 1,489,457. C. C. Pennell, Thorndale, Pa.

ROLLS, Delivering material from. 1,489,874. W. M. Wheildon, Ashland, Mass.

SHUTTLE tip. 1,489,584. E. L. Tinkham, Hopedale, Mass.

THREAD guard and spinning ring holder, Combined. 1,489,910. C. D. White, Norwich, Conn.

THREADS or filaments, Twisting frame for. 1,489,478. T. A. and H. A. Boyd, Shettleston, Scotland.

WEBS, Operating upon printed. 1,489,833. G. M. Keller, Philadelphia, Pa.

YARN winding machine. 1,489,280. W. Severns, Chicago, Ill.

Processing Foreign Cotton

(*Continued from page* 138)

variation in losses and the bad arrangements commonly associated with such work. There is no reason why these should not be reduced to those consistent with the best practice in the use of the ordinary process. In the tabulated details of productions, drafts and specification of working (See Fig. 2) the variables have been assessed at 5 per cent with a further 2½ per cent allowance for breakages. The twist coefficients used in compiling that table are 1.8 for roving and that for yarn 4.5.

In deciding on the settings of the rollers it is necessary to observe that a closer setting must be used than in ordinary roving frames. This is on account of the softer body of fibres present and the absence of twist. The amount of the clearance over the length of the longest fibres should be the smallest practicable. At this stage it is often possible to have the rollers closer than is practicable at the spinning stage.

The spinning machine most commonly used is the mule or ring and the former gives the best results. No special provision is necessary other than that common in using these machines for similar kinds of cotton from the ordinary rove similar in its irregularity. Lower spindle speeds may be generally advisable on account of the lowered spinning conditions. Special attention should be given to keeping all the parts free from collections of fluff and dirt; in this way the outturn is improved in quality and quantity. The general particulars of production are indicated in the tabulated matter referred to in the previous description (see Fig. 2).

(*To be continued.*)

Business Literature

INSTRUCTIONS FOR MAKING LEATHER BELTS ENDLESS; PRE-TESTED LEATHER BELTING; Chicago Belting Co., Chicago. These are two new booklets just issued by this company The former is an extremely valuable booklet of practical instructions for the man in the shop who has charge of belts. It outlines the methods in a clear and concise manner and its use of many illustrations adds to its value.

The other booklet describes the company's "pre-tested methods" and outlines what this means to the buyer of belting. It also contains a brief history of the Chicago Belting Co., which was founded 35 years ago.

*HUDSON, MASS. More than 60 per cent of the employes of the Wottoquottoc Worsted Co., have agreed to accept a 20 per cent wage reduction until business improves and work is being found for them as fast as possible.

QUESTIONS AND ANSWERS

Under this head, we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to TEXTILE WORLD. Inquiries should give the fullest information and data possible. In the case of damage to material, a sample should be sent. In this way answers can be given which will be of immediate technical value to the correspondent and to others in the same line. Inquiries pertaining to textile processes, machinery improvements, methods of management, the markets, etc., are especially invited as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith. The identity of correspondents will not be disclosed.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.—EDITOR.

Recording Labor and Repairs on Machines

Technical Editor:

Will you kindly advise the most satisfactory method for recording labor and repairs on the individual machines in the factory. (5057)

The inquirer does not state whether he refers only to recording the cost in labor and material for repairs, or whether he has in mind operating labor also. In what follows we have both in mind.

In the first place each machine must be numbered, either consecutively throughout the entire mill or in each department. That is, the machines in the spinning department may be S-1, S-2, S-3, and so on; those in the weave room may be W-1, W-2, W-3, and so on. Or the numbers may run continuously throughout the mill. For the purpose in mind, the former method is preferable.

The keeping of the operating cost, that is, labor only, is a simple matter of detail on the part of the timekeeper. If John Doe works on machines S-1, S-2, and S-3, then his time is so entered each day in the time book. At the end of the pay roll period the total amount gives the labor to be charged to those machines for that period.

For the proper keeping of repair costs in both labor and material, several forms might be adopted. One form is an order made out by the overseer of the textile department on the repair department for repair work to be done. On a line marked "Machine No." is entered the number of the machine which is to be repaired.

Another form is filled out either by the textile overseer to obtain any supplies for his work; or if the man who makes the repairs needs any material in connection with the work he uses the same form. Here again, the "Machine No." should be entered.

A third form is a weekly time sheet for the man in the repair shop. In the first column on the left is entered the number of the machine on which the work is being done as taken from the overseer's order. In other columns are entered the hours worked or whatever days. The entire time of the man for the week is thus analyzed and tabulated. These sheets are made out by the men, examined and signed by the foreman, and then sent to the timekeeper on each Monday morning.

A fourth record is a monthly form used by men whose work does not vary in distribution from day to day to any extent. It is used chiefly for operating engineers, oilers, etc., rather than for repair men. It could be easily adapted for keeping the cost and distribution of operating labor.

Another form is for summarizing materials that have been used on jobs, such as lumber, pipe, iron and steel, etc., and miscellaneous supplies as well.

It is obvious that the use of these forms or others will necessitate some clerical labor, and also some work on the part of the men doing the repairs. But when once installed the system will give correct and immediate results as to both operating and maintenance costs.

Weaving Tinsel

Technical Editor:

We would appreciate it very much if you would give us some information pertaining to the manufacture of tinsel fabric. We are enclosing a sample of the tinsel we refer to. This material is used as warp. We have made experiments with cotton harnesses, which proved entirely too rough, that is, the eyes of the heddles are not smooth enough for the tinsel thread to pass through. Heddle harnesses also proved unsatisfactory. The density of these warps is from 40 to 80 ends to the inch. (5055)

Under a glass the tinsel shows up as a flat tape-like thread that is loosely twisted. This thread is of a size that would compare with a 2/20s cotton thread; that is, the distance across the flat side of the thread is about equal to the diameter of a cotton thread of that size. Unless the tinsel were drawn on a large number of harnesses the space taken up by the threads would make the condition in the harnesses very crowded, particularly if the sley were around 72 to 80. The weave would have some influence on a warp made up from the tinsel, and the question arises whether it is the harness or some other factor that is causing the breakage or splitting of the tinsel thread.

If the warp is run over a whip-roll the bending of the thread over the roll would have a tendency to split it before it reached the harnesses. This is the reason why some yarns have to be fed straight from the warp into the harnesses, instead of passing over a whip-roll. If it is really the harnesses that are splitting or breaking the thread it cannot be that the cotton harnesses are doing this because cotton harnesses can be bought that will weave 100s cotton warp very successfully. Such harnesses or healds are made with two to three-ply cotton twine, using Sea Island.

Our opinion is that the harnesses are not too rough but that the tinsel eats into the varnish of the heald, cutting a groove and that the irregular tinsel thread gets caught in the groove and is broken. We doubt if the varnish on the cotton heald would last many days when using such a thread as the tinsel submitted, and after the varnish is gone the heald will not stand up very long.

The round wire galvanized heddle would act about the same, for the tinsel would soon eat into the galvanized part of the eye and cause a slot to be formed, just as the slot would be formed on the cotton heald. Owing to the irregularity of the tinsel thread the slot would soon stop the progress of the tinsel and the thread would break.

We have a lot of faith in the flat steel heddles and are sure that if they were strung very carefully and loosely and tried out under proper conditions there would be little trouble.

In the weaving of cloths with threads that are liable to split or break from pressure or tension, it is a mistake to weave with a low number of harnesses. At least 8 harnesses should be used for an 80 sley cloth. This would mean ten heddles per inch and would give the thread lots of working space. It is possible to use 8 harnesses when weaving plain on the ordinary cam loom. All that is necessary is to string the harnesses up in pairs. It would be still better to use what is termed a double plain cam. In this way the two pairs of cams, cast in one piece, could be timed differently and when the sheets of tinsel thread were passing each other in the reed they would be slightly apart. This would obtain in the harnesses when the sheds are being formed.

* * *

Sizing Elastic Webbing

Technical Editor:

What is a good formula for sizing a cotton textile which contains rubber, such as the webbing used in making abdominal supporters and elastic stockings? What can be used as a preservative for the sizing solution which will keep it from souring, if it is kept for a time before being used? (5098)

A webbing manufacturer replies to this question as follows: We know of no better formula for this class of goods than light gelatine size, using a good quality of gelatine. This, when cold, should remain fit for use and keep sweet for quite a considerable period without the addition of any material for preserving. The proportion used depends largely on the absorbent character of the particular goods being processed, and the finished firmness required. It also depends on the temperature of the sizing, together with the general character of the machine used for finishing. Should the application of the sizing liquor be by the method of passing the goods over and between nip rolls which are revolving in the size pan, the goods do not take up so much size as by the process of immersion, and therefore a heavier body of size is required than when the goods are immersed and afterwards subjected to a squeezing process before passing to the drying cans. In any case it is well to keep the size bath hot when applying, otherwise the size will thicken and have a tendency to remain on the surface instead of penetrating the goods, baking on and giving a harsh handle.

Elastic goods such as those generally used in the making of abdominal belts are mostly of a very open weave, having a long stretch. These soft open weaves do not lend themselves to the use of harsh sizes as such sizes will lock the fibres of the yarns together and interfere with the easy stretch required, besides giving the goods a harsh handle. Covered rubber strands are also generally used, the covering being more or less exposed on the surface of the goods. If this covering comes in direct contact with an unsuitable size, the elasticity of the goods is interfered with more readily than when the uncovered elastic thread is used, which has more freedom of action in the cavity in which it is woven.

If the method of passing the goods over and between immersed nip rolls is employed, three-quarters of a pound of good gelatine and a like quantity of paraffin wax should give about the right consistency. But if they are immersed in the size and then squeezed out between nip rolls, one-half of the quantities given should be sufficient. Exact proportions can best be determined by experience, as the requirements of different fabrics vary, while the method of application and the heat of the liquor and the heat of the cans are important factors in determining the quantities of ingredients necessary. If the goods should be immersed in finishing, it is well to have the first can on the machine covered with a thin cloth so as to absorb any excess of size which may have been carried on the goods, so as to avoid harshness of handle.

* * *

Streaks and Loose Lines in Silk Hosiery

Technical Editor:

The enclosed stocking shows streaks and loose lines in the knitting. We will appreciate having the benefit of your experience and would ask you to kindly let us know whether this condition is due to faulty silk, or if it is in the knitting. (5109)

The lines in the sample hose submitted are the result of faulty knitting and may be caused by uneven tension, either in the winding or knitting. Probably the tension disks on the knitting machine need adjusting. There is also evidence of trying to knit too loosely in an attempt to save silk in the boot of the stocking which shows very plainly the lack of tension control in knitting.

If the stocking submitted were knit with an even application of moisture on the silk yarn it would also be of assistance in eliminating the streaks and loose lines. There are numerous preparations on the market expressly made for this purpose which may be applied as an emulsion in winding or in knitting.

A careful inspection of the silk does not reveal any fault in that material which could be in any way responsible for your trouble. However, there seems to be an error in the division of long and short butt needles, causing an uneven toe. If you examine the looping corners you will readily see what is meant. There appears to be one or two more short butt needles than are necessary. Have your machinist spot the cylinder walls on the dividing lines between the long and short butt needles with a small prick punch so that this mistake may be avoided. The splicing also overlaps two needles more on one side of the double sole than on the other. A slight adjustment in your splicing cam at this point would help to improve the appearance of the stocking.

CASWELL PAINTING SERVICE

The photograph shows a section of No. 4 Farr Alpaca Company's cotton mill, Holyoke, Mass. This is the largest cotton mill erected in the U. S. during 1923, and is painted throughout by Caswell.

Paint costs money; don't waste it!

Paint is too valuable for its application to be entrusted to inexperienced men. Expert *painting* is no less necessary to economy and appearance than is the paint itself.

Let your next painting job be done by experts. Based on quality and price, many large New England mills have found that it has paid them to place the painting contracts with Caswell.

Caswell service not only includes the mere application of paint, but we gladly advise you relative to the qualities of various brands and quote you lowest possible price including every item connected with your particular job.

No need to halt operations

Caswell service means that your entire mill can be painted without the stopping of a single machine. There need be no interference with production.

We are also prepared to show you whether spray-gun or brush painting is the cheapest and most efficient for your individual case. Let one of our representatives call and talk things over with you, involving no obligation on your part. Let us show you actual photographs of some of the largest mills in the country that have been painted by the Caswell method.

Edward T. Caswell

Established 1860

Bates Kirby Bldg., New Bedford, Mass.

INDUSTRIAL PAINTING

Let CASWELL *paint your mill*

Spray Gun or Brush

Keeping Faith With Mill Men

The makers of Williams' Shuttles feel a certain responsibility to the man who eventually uses their products. An eagerness to please is apparent in the thoroughness which characterizes these loom specialties.

In the first place, no shuttle block is used which does not come up to par. Seconds don't go. The fine points that make for perfect coordination—all these things are stressed. As a result the finished product is without an unharmonious note. It becomes an integral part of your looms. The user of Williams' Shuttles expects *service* and he gets it.

Our staff of shuttle experts are ready to cooperate with mill men in determining their shuttle requirements. A request for samples incurs no obligation whatever.

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The J. H. Williams Co.

"The Shuttle People"

Millbury, Mass.

Giving the Warp Threads Full Play

Heddles are built on the principle that they "should be seen but *not felt*." If a warp thread was capable of sensation, it would scarcely get a tremor when passing through the frictionless eyes of these heddles.

It is this freedom from chafing that is responsible for the small amount of breakage users experience. The eyes of the heddles are made velvety smooth by a patented soldering process. Consequently, the thread runs through without being weakened, or creating fly.

Heddles conserve weaving time and protect the quality of your woven goods. We shall gladly send samples.

WASCO

L. S. Watson Mfg. Co.

Leicester, Mass.

MILL NEWS

NEW MILLS

Cotton

AHOSKIE, N. C. Plans are under way for the erection of a cotton mill here. A local committee, composed of E. J. Gerock, S. M. Applebaum, J. R. Garrett and L. K. Walker have been taking subscriptions to the enterprise, being commissioned for the purpose by the local chamber of commerce. J. S. P. Carpenter, representing Philadelphia interests has been here and has promised to put from $40,000 to $75,000 in the venture, providing the citizens of the town raise approximately $100,000. It is expected that the necessary amount will be forthcoming.

*BELMONT, N. C. The Eagle Yarn Mills, Inc., which started the construction of their plant here last Spring, expect to begin manufacturing C. P. cotton yarns, 30s to 50s in ball warps, skeins, tubes and cones, about June 1. They will have an equipment of 12,672 spindles for initial operations. W. B. Puett is president; J. W. Stowe, treasurer and buyer; D. W. Bumgardner, superintendent. Selling arrangements have not yet been made.

*HEMP, N. C. Contract for construction of the County Moore Cotton Mills is expected to be awarded before long as bids have been received by the engineers, Lockwood, Greene & Co.

*LENOIR, N. C. The Caldwell Cotton Mill at Hudson will be put in operation within 90 days, it is announced. Machinery is now being installed. The mill will have 6,000 spindles making 24s to 36s yarns. J. E. Sirrine & Co., Greenville, S. C., are the engineers in charge.

*WHITNEL, N. C. The new Nelson Cotton Mill has about two-thirds of its machinery in operation and all will be running within a short time. The mill will have 6,000 spindles for the manufacture of 26s to 30s yarns. J. L. Nelson is president.

*HOUSTON, TEX. Plans for the Houston Cotton Mill have been prepared by J. E. Sirrine & Co., Greenville, S. C. It will be a 5,000 spindle plant for the production of cotton blankets.

Wool

*LOS ANGELES, CAL. Worth Bros., Inc., 4400 Worth St., worsted yarn spinners to the knitting trade, are now running to full capacity and are already well established. The following are the officers of the company: Edgar Worth president, W. G. Worth vice-president, J. W. Worth secretary and treasurer, Leon B. Webb and W. H. Dolby directors. Edgar Worth was formerly general manager for Canadian Woolens, Ltd., Peterboro, Ont. J. W. Worth was manager of Bonner-Worth Mills of Canadian Woolens, Ltd. and L. B. Webb was sales manager of Bonner-Worth Mills of Canadian Woolens, Ltd. W. G. Worth was previously agent in Canada for Inman, Spencer & Co., Bradford, Eng., wool merchants and also a director of Otonabee Mills, Ltd., worsted spinners of Peterboro, Ont. W. H. Dolby was formerly connected with the Carborundum Co. of Niagara Falls, N. Y. The Worth brothers were largely interested in the Bonner-Worth Co. of Peterboro, Ontario before it was sold to the Canadian Woolens, Ltd. in 1918. The Worth Bros., Inc. mill has an area of 16,750 sq. ft. and has 2,000 spinning spindles and 1,000 twisting spindles. All the machinery was bought through Edward Jefferson, Philadelphia. The above mentioned machinery is the first of four units that will be proceeded with as quickly as conditions warrant. They are specializing on EB., B. & C. qualities that were started by them in Canada and eventually became the standard of the Canadian knitting trade.

*PAWTUCKET, R. I. The Halliwell Co. has installed 34 looms, dyeing and finishing equipment in the newly erected Worsted Division of which Benjamin Halliwell, treasurer of the Lymansville (R. I.) Co. is at the head. John J. Monahan is to have full charge of the new mill.

Knit

*OXFORD, N. C. The C. & M. Hosiery Mills, Inc., recently incorporated with $50,000 capital, have started operations, employing about 40 workers. They contract in the grey and dye and finish at the mills, specializing in seconds and thirds of all grades of hosiery. N. Cohn buys 3-70s yarn. Samuel Cohn is president and I. C. Cohn, treasurer of the company.

TORONTO, ONT., CANADA. The Wedgewood Knitting Mills, Ltd., have been granted an Ontario charter with headquarters at Toronto. The company is capitalized at $100,000 and will establish a mill for the manufacture of hosiery and other knitted goods.

Silk

*PATERSON, N. J. The Commercial Silk Co., recently incorporated with capital stock of $50,000, will start the manufacture of georgette crepe, dress, lining and millinery silks in a four story, brick mill at 31 Dale Ave. It is expected that 40 operatives will be employed immediately. Louis A. Weiner is president and Martin Weiner, treasurer.

ALLENTOWN, PA. M. Canova of the Canova & Simone Silk Co., Inc., Cedar and Dover Sts., Paterson, N. J., is perfecting plans for the establishment of a new mill in the building at Eighth and Pittston Sts., Allentown, for the manufacture of broad silks. The initial installation will consist of about 50 looms and auxiliary equipment.

*CORNWALL, ONT., CANADA. Courtauld's, Ltd., of London, England, have awarded contract for the construction of their artificial silk plant just east of Cornwall, to the Foundation Co., of Canada, London and New York. Vickers, Ltd., have the contract for supplying the steel.

ENLARGEMENTS AND IMROVEMENTS

Cotton

*UNION SPRINGS, ALA. The Union Springs Cotton Mills, now controlled by the Comer interests, are operating again after having been closed some time for repairs. Additional buildings have been erected and new machinery installed.

*BREMEN, GA. The Mandeville Mills of Carrollton, Ga., have started the conversion of an oil mill in Bremen, to a weaving plant, to be known as Bremen Looms, Inc. J. E. Sirrine & Co., Greenville, S. C., are the engineers in charge.

NORTH OXFORD, MASS. The Edwin Bartlett Co. has let the contract to the Southbridge (Mass.) Roofing Co. to repair and place new covering on top of the buildings at the plant at a cost of $3,000.

CENTRAL FALLS, N. C. The Pennsylvania Yarn Mills, Inc., through the office of Lockwood, Greene & Co., engineers, Boston, have awarded contract for the erection of an addition to their plant. It will be 54 x 134 ft., two stories, mill construction, and cost approximately $30,000.

*DUKE, N. C. The Erwin Cotton Mills Co., is converting the Erwin Mill No. 1 at West Durham into a wide sheeting mill, and is moving the denim looms, dyeing and finishing equipment to its plant at Duke, N. C. In order to handle their indigo warp dyeing they have purchased three complete one-run indigo dyeing machine units, each of which will handle 24 warps at one time. These dyeing machines cover a floor space of 200 x 35 ft. J. E. Sirrine & Co., Greenville, S. C., are the engineers.

HAW RIVER, N. C. The Travora Mfg. Co., Graham, N. C., reported early this year as having taken over the plant of the Haw Mfg. Co., has engaged J. E. Sirrine & Co., engineers, Greenville, S. C., to supervise construction of an opener room addition to the warehouse and an extension of several feet to the spinning room of the Haw River plant which is still known locally as Haw Mfg. Co. or "Trollinwood."

*SWANNANOA, N. C. As previously reported in ADVANCE NEWS, the Beacon Mfg. Co. with mill in New Bedford, Mass., has purchased land here and expects to start construction of a complete new mill and village within a few weeks. Knight C. Richmond is the engineer.

PHILADELPHIA, PA. The Philadelphia Tapestry Mills, Allegheny Ave., have taken out a permit to make alterations and improvements in their dye house, for which a general contract has been awarded to A. L. Carhart, 1328 Chestnut St.

*ARCADIA, S. C. The new plant of the Arcadia Cotton Mills here, costing between $500,000 and $600,000, has been completed and begun operation. It is said that the mill has a big supply of orders on hand.

CAMDEN, S. C. The Wateree Mills are contemplating extensive improvements to their plant here, according to a report.

ENOREE, S. C. The Enoree Mills are adding 12 intermediate roving frames to their carding department and replacing 2,496 spindles of old spinning with 3,840 spindles new Whitin spinning, all warp wind. J. E. Sirrine & Co., Greenville, S. C., are the engineers in charge.

*LYMAN, S. C. Plans of the Pacific Mill interests for the development of their plant here involve an ultimate expenditure of $20,000,000, according to H. J. Howitz, vice president of Parklap, Inc., contractors who have handled the huge contract at Lyman. The bleachery, cotton mill and other developments now under way will cost approximately $5,000,000, and these are but one-fourth of what it is proposed to expend before the project is finished, Mr. Howitz stated. He was unable to say just when these projects would be started but thinks it will probably be within the next year. The mill and bleachery at Lyman will be ready for operation by July 1, employing approximately 900 persons. The village has been virtually completed. Lockwood, Greene & Co., Boston, are the engineers.

ROCK HILL, S. C. The Aragon Cotton Mills have built an addition to their opener room in which they have installed tandem set of three Saco-Lowell vertical openers. J. E. Sirrine & Co., Greenville, S. C., were the engineers in charge.

ROCK HILL, S. C. The Arcade Cotton Mills have installed three vertical openers in tandem and 14 cards, in addition to older equipment. J. E. Sirrine & Co., Greenville, S. C., were the engineers.

Wool

*CHARLTON CITY, MASS. The Aldrich Mfg. Co. has completed its new dye house and installed one new kettle and a new dryer. H. W. Bail, Southbridge, Mass., was the contractor.

*NORTH ADAMS, MASS. The Hoosac Worsted Mills Dept. of the Arlington Mills are putting in 12 sets of woolen cards. The installation of mules will follow.

WORCESTER, MASS. The M. J. Whittall Associates are to build a brick, two-story, 26 x 27 ft. dyehouse at their plant in South Worcester. The work will be done by the day from private plans.

PHILADELPHIA, PA. John B. Stetson Co., 5th St. & Montgomery Ave., felt hat manufacturers, have awarded contract for alterations to be made to one of their mill buildings. Cost will be $3,000.

Knit

ST. LOUIS, MO. The Lincoln Knit Goods Mills, 2235 O'Fallon St., have started spinning all of their wool yarns, running a production at the present time of 8,000 lbs. per week. Their new line of wool shakers and jumbos at popular prices has met with wonderful success, according to Superintendent E. W. Stewart, and is sold up well into October. Early next year, if conditions are favorable, they expect to start a dye plant in St. Louis.

FRACKVILLE, PA. The Acorn Hosiery Mill, Inc., will have plans drawn at once for the erection of a new knitting mill.

WOOLRICH, PA. John Rich & Bros. have commenced the erection of two

* Indicates previous mention of project.

ENGRAVED BRASS TRADE MARKING BOX LABELING TEXTILE MARKING DIES

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WE ALSO MANUFACTURE
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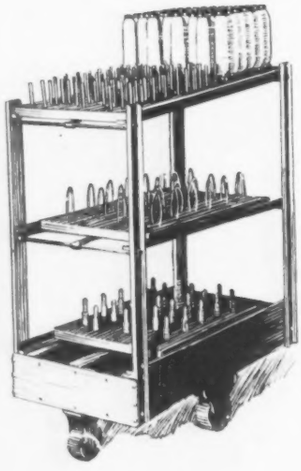


Do you Condition Yarn?

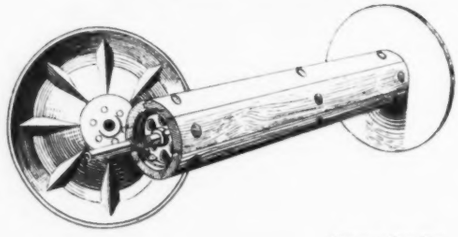
Steam-Proof "Kore-Lokt" Pin Boards

will not only save the labor of re-handling but will avoid the excessive spoilage traceable to oil, grease and chafing. They also eliminate the old fashioned filling boxes on the looms.

WASHBURN
IF IT'S ROLLS, WE MAKE THEM
MFG. BY WASHBURN NEW BEDFORD MASS.

NEW BEDFORD, MASSACHUSETTS

"ECONOMY" SECTION BEAMS



Patents Pending

THE LAST WORD IN BEAM CONSTRUCTION

No other beam on the market possesses the advantages of this improved type.

Interlocking, replaceable staves, removable shaft and all-metal interior construction spell *Real Economy.*

Furnished with or without heads.

WASHBURN
IF IT'S ROLLS, WE MAKE THEM
MFG. BY WASHBURN NEW BEDFORD MASS.

NEW BEDFORD, MASSACHUSETTS

Mill News—Continued

additions to their local mills, consisting of a two-story structure, 40 x 90 ft., to be used primarily for storage service, and a one-story building, 30 x 30 ft., to be equipped as a machine shop.

*Pikeville, Tenn. The branch plant of the McAllester Hosiery Mills, for which W. K. Brown, Pikeville, has the general construction contract, will be 110 x 60 ft.

Silk

Long Island City, N. Y. The Astoria Silk Works have commissioned Ophus & Hill, engineers, 112 W. 42d St., New York, to prepare plans for an addition to their power plant, estimated to cost $200,000, with equipment.

Miscellaneous

Flintstone, Ga. The Yates Bleachery Co. expects to have its new dye house ready for operations early in May. This will be a new department, having a daily capacity of 60,000 yards. G. E. Frick, formerly connected with the Kerr Bleaching & Finishing Works, Concord, N. C., will be superintendent.

Peabody, Mass. The Danvers Bleachery & Dye Works have plans nearing completion for the erection of a two-story addition, 50 x 100 ft. It will cost approximately $75,000. Smith & Walker, 80 Boylston St., Boston, are architects.

*Salisbury, N. C. The addition to the plant of the North Carolina Finishing Co. for which contract was recently awarded to K. L. Bradshaw, will be 70 x 143 ft. and will be used entirely for manufacturing purposes. It will not necessarily increase the equipment of the plant but is being put up so as to give more room to handle goods. J. E. Sirrine & Co., Greenville, S. C., are the engineers in charge.

Oklahoma City, Okla. The Sigmon-Sealy Mattress Mfg. Co. has commenced operations in its new local plant, giving employment to about 45 persons.

Philadelphia, Pa. The Edwin H. Fitler Co. has filed plans for the erection of an addition to its plant to be used primarily for storage service. A general building contract has been awarded to C. P. Collier, 4287 Orchard St., Philadelphia.

Greenville, S. C. The Union Bleachery has purchased a seven compartment piece dyeing machine with a three roll saddler, also a three compartment washing machine, a single compartment demolting machine, and twelve dyeing joggers.

FACT AND GOSSIP

*Ringgold, Ga. Progress is reported in securing subscriptions for the proposed silk hosiery mill in which W. A. Nichols of 503 Baldwin St., Chattanooga, Tenn., is interested.

*Lowell, Mass. The Farmac Fabric Co., which recently started the manufacture of materials for the rubber trade in the Burgess-Lang Building, has an equipment of 1,280 twister spindles and three broad looms. The firm buys 1-13s, 1-23s, 3-13s and 5-23s cotton yarns. Product is sold by the Farley-McCreay Co., Akron, Ohio.

Peabody, Mass. The Naumkeag Steam Cotton Co., will hold in abeyance, probably until early in the fall, the erection of its proposed four-story addition, 60 x 100 ft., brick and reinforced-concrete, for which plans have been drawn by Smith & Walker, 80 Boylston St., Boston. It will be used primarily for warehouse service.

Monson, Mass. The A. D. Ellis Mills, Inc., have started their weaving department on night work in their No. 3 mill. Other departments have been running nights for about a month. The mills have a large order for cloth for the covering of tennis balls.

*North Adams, Mass. The Columbia Woolen Mills expect to start up the former plant of the North Adams Mfg. Co. early in May. Machinery is now being installed and everything put in readiness for the reopening. Officials say that more than 150 hands will be employed at the outset.

West Brookfield, Mass. The Gavitt Mfg. Co., braids, has taken over the Sampson & Bates Co., manufacturers of felt slippers, etc., and will combine it with its other lines.

Gloversville, N. Y. A. G. Velasko, president and treasurer of the Oake Knitting Co., Syracuse, has purchased the controlling stock in the Normandie Silk Mills, Inc., previously held by James A. Batty. Mr. Velasko has been named general manager of the mill and George A. Batty, his assistant. No change in manufacturing is contemplated, the firm continuing to make silk underwear. During March the business is reported to have shown a 100 per cent increase and further increases in production are looked for.

*New York, N. Y. The Friends Novelty Knitting Mills which recently started the manufacture of infants' novelties at 1685 Washington Ave., have an equipment of four knitting and three sewing machines. The owner buys 2-18s, 2-20s and 2-26s worsted yarns and also silk yarns.

*Peekskill, N. Y. The Bailey Underwear Co., recently chartered to manufacture knit underwear, is a reorganization of the Baker Underwear Co., with mill here.

*Stillwater, N. Y. The Stillwater Knitting Co., Inc., has started operating activities in its new plant with about 125 workers.

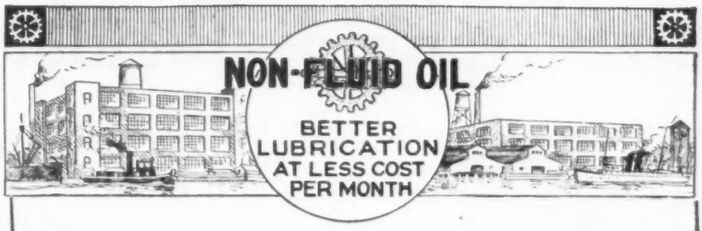
*Philadelphia, Pa. The Jasper Yarn Co. has been chartered with a capital of $50,000, to operate a local mill. George B. Kennedy, Swarthmore, Pa., is treasurer and representative.

Bethune, S. C. Several citizens of Bethune are said to favor the establishment of a small cotton mill there and would be willing to subscribe substantials amounts toward building it.

Toronto, Ont., Canada. The business of the Dovercourt Twine Mill, Bloor St., Toronto, run by Shurly & Derrett, has been taken over by Frank Welch, president of the Textile Mfg. Co., Ltd., Wellington St., manufacturer of shoe and corset laces. The two mills will be run separately.

*Campbellford, Ont., Canada. The Campbellford Cloth Co., Ltd., has practically completed removal of its finishing and dyeing departments to Toronto.

*Indicates previous mention of project.



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Modern Textile Lubricant

It abolishes all drip and waste, cutting down the cost of lubrication.

It provides a constant check on friction which keeps down power consumption and wear on machinery.

And it stops oil stains on goods—helping to increase output.

These advantages result in important savings to the mill, while the lubricant cost per month is considerably lower.

The proof is in your own hands — testing samples will be sent you on request. Just fill out the coupon with name and address.

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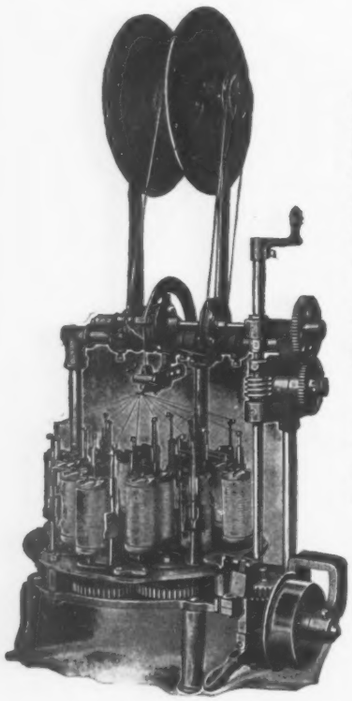
Light-running braiders

that produce at a low power cost



16 Carrier No. 2 Braider

When you use New England Butt braiders you can feel sure that you are getting full production and at the same time operating the machines at a very small power expenditure.

The output obtainable from our No. 1 and No. 2 Braiders is, in fact, very high for floor space occupied and we will welcome any comparison of production, where floor space, original cost and maintenance are of interest. If interested, send for new catalog.

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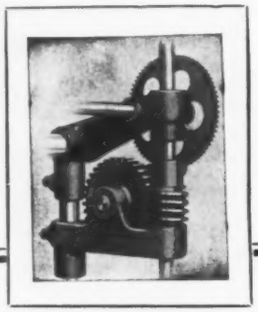
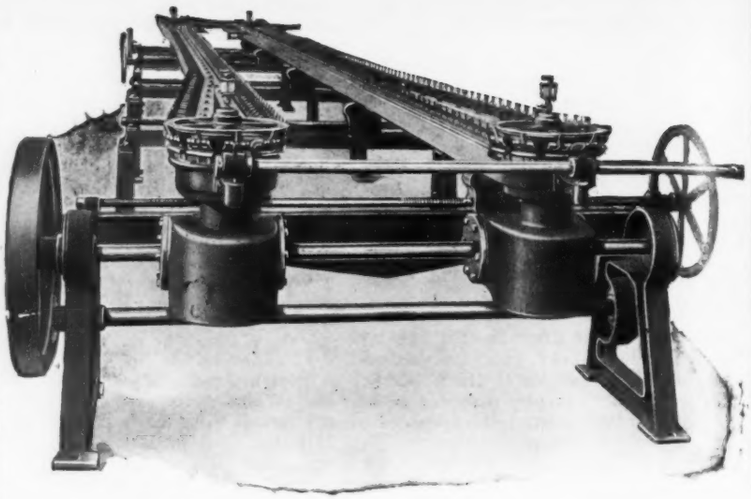
Illustrated below is the worm, worm gear, and worm gear bearing now used on all our No. 1 and No. 2 Braiders. This makes the machine more durable, self-aligning, easily adjusted and interchangeable.





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The new engineering principles embodied in the Morrison Tenter mark it as a machine apart from and above any claimant for comparison.

In appearance, in performance, in the positive knowledge that there can be nothing better, the Morrison Tenter stands absolutely alone.

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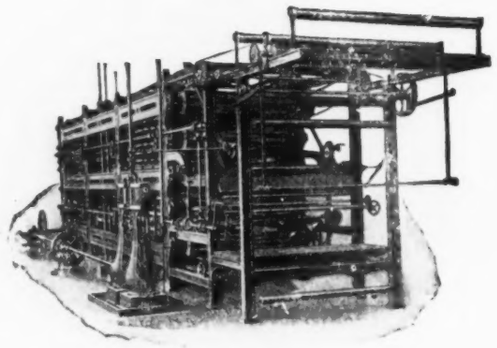

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Also
Chinchilla Machines, Fulling Mills, Cloth Washers and Crabbing Machines

D. R. KENYON & SON

Raritan, N. J.

COTTON GOODS MARKETS

Dullness Unbroken in all Staple Lines

Extreme Quiet in Nearly All Divisions—Few Specialty Exceptions—The Cotton Complex

If there have been any noteworthy new developments in the first hand market during the week they have been kept carefully covered up. With the exception of a few specialties all classes of goods remain quiet. All indications seemingly point to a draggy market up to July 1, at least.

The expected temporary spurt in gray goods had not yet developed at mid-week, and price changes from quotations in effect during the previous week were only slight. It is expected that there will be a series of minor movements in unfinished goods during the next two months, but that real heavy buying can hardly be looked for during this period.

It is pointed out that while raw material fluctuations continue from day to day, they no longer cover the wide range that was comomn a few weeks back.

Practically all staples in finished goods continue in unsatisfactory position. This applies especially to staple ginghams and bleached goods. Percales remain unchanged. Second hand trading in coarse colored goods such as tickings and denims are not helping the primary market.

Despite the predicted slump in broadcloths domestic mills are understood to have obtained good business recently at highly competitive prices. Voiles, according to many, promise to be relatively good for some time to come.

Cotton Goods Trade Notes

If anyone wants a simple and concise statement of what is and has been wrong with the goods market it may be found in three words—the cotton complex. This year has not duplicated 1923 by any means so far as goods business is concerned, but it threatens to parallel last year closely in raw material developments.

There has grown in the minds of many in the trade, sellers of goods as well as buyers, an intangible suspicion that somehow or other the South is going to make a big crop this year. Reports of satisfactory early planting, of larger acreage, of increased use of fertilizer, etc., all tend to strengthen this suspicion.

We had the same succession of events last year. "Middlings at 17c are on the way," cried the bears—yet it is fresh in the memory of all that 37c spots were what the way actually delivered.

"Do you think the South can make a crop of 13,000,000 bales this year," was asked a southerner with a considerable reputation for shrewdness in guessing the staple right.

"Certainly," he answered; "we can make 15,000,000 bales, given the weather. If we actually make over 11,000,000 bales, though, I will walk down Broadway on my hands for as many blocks as you say."

The week just closed was National Gingham Week, and was featured by special displays in retail stores all over the country. As has been said so many times before, the highly styled lines are receiving the major attention of consumers.

The advertising agency employed by Cannon Mills, Inc., in a recent advertisement in an advertising publication, makes the following interesting statements:

"Before they started to advertise, Cannon Mills, Inc., made about half the huck and turkish towels used in this country. For three years now, advertising prepared by advertising headquarters has sold *branded* Cannon towels to the trade.

"Today, there is a national distribution of these branded towels. It is evidence that our work 'behind the scenes' has been well done. All is set for the curtain to go up. Consumer advertising on Cannon towels begins in May."

Total March Imports

Comparative figures issued by the Department of Commerce on total imports of cotton cloths and raw cotton during March and for the nine months ended March, are presented in the following table:

	March		Nine months ended March	
	1923	1924	1923	1924
Raw cotton, lbs.	26,609,718	24,916,368	198,977,107	110,931,657
Raw cotton	$7,126,474	$7,807,110	$51,196,569	$33,973,314
Total cotton manufactures	$11,515,876	$8,290,320	$69,062,778	$70,587,791
Total cotton cloth, sq. yds.	.....	17,476,519	.....	159,472,513
Total cotton cloth	$5,743,526	$3,794,011	$29,733,362	$33,050,106
Unbleached, sq. yds.	.....	10,331,220	.....	75,823,857
Unbleached	$2,436,657	$2,000,710	$10,800,484	$13,930,223
Bleached, sq. yds.	.....	737,742	.....	7,120,242
Bleached	$519,556	$194,815	$3,537,001	$1,787,800
Colored, sq. yds.	.....	6,407,557	.....	76,528,414
Colored	$2,787,313	$1,598,486	$15,415,877	$17,341,083

Details of Imports April 1-15

The quantity and value of specified kinds of cotton cloth imported at New York, from April 1 to 15, 1924, are stated as follows by the Department of Commerce:

Description of Cloth	Square Yards	Dollars
Lawns, organdies, nainsooks, cambrics, and similar fine goods of average yarn number above 40	224,381	43,266
Poplins and broadcloths:		
Unbleached	2,903,823	627,555
Bleached	3,744	842
Printed, colored, or fancy woven	17,984	3,573
Sateens woven with less than eight harnesses	1,576,326	268,482
Sateens woven with eight or more harnesses	23,685	3,999
Voiles, plain or fancy	730,931	135,905
Crepes, plain or fancy	108,637	16,434
Ratines	305,356	95,742
Dotted Swisses	79,977	26,392
All Jacquard woven cloths, other than swivels or lappets	80,558	23,218
Ginghams, two or more colors	210,033	39,967
Venetians:		
Unbleached	18,250	3,403
Bleached	11,198	6,080
Printed, colored or fancy woven	158,730	54,923
Totals	6,453,611	1,349,770

Whitin Building Golf Course

WHITINSVILLE, MASS.—Work has been started by the Whitin Machine Works on the laying out of a 9-hole golf course on 70 acres of land acquired from the Whitinsville Cotton Mills, but it will not be available for use for another year since a club house, tennis courts and other adjuncts are to be part of the undertaking planned by officials of the works. Before the links are completed it is expected they will organize a country club to operate the property.

Comparative Quotations

	April 30	April 23	May 3, 1923
Spot Cotton, New York	29.80c.	29.35c.	27.15c.
Print Cloths:			
27- in., 64x60, 7.60 yd	6½c.	6½c.	7¾c.
38½-in., 64x60, 5.35 yd	8⅝–8¾c.	8½c.	10½c.
39- in., 68x72, 4.75 yd	10¼c.	10¼c.	12c.
39- in., 72x76, 4.25 yd	11½c.	11½c.	12½c.
Brown sheetings:			
36- in., 56x60, 4 yd	11–11¼c.	11–11¼c.	12½c.
36- in., 48x48, 3 yd	14c.	14c.	14¾c.
37- in., 48x48, 4 yd	10¼c.	10½c.	11c.
Pajama Checks:			
36½-in., 72x80, 4.70 yd	11¼c.	11½c.	11½c.
36½-in., 64x60, 5.75 yd	9½–9¾c.	9¾c.	10c.
Drills, 37-in., 3 yd	13¾c.	13¾c.	15¾c.
Denims, 2.20s	*22–24	*22–24c.	25c.
Tickings, 8-oz.	25½–26c.	25½–26c.	30c.
Standard prints	9¾c.	9¾c.	11c.
Eastern staple ginghams, 27-in.	12½c.	12½c.	*14–4

* Nominal.

Yarn Scarcity Seen in Manchester Market

May Ask Spinners to Increase Hours—May Postpone Vienna Cotton Conference

MANCHESTER, Eng., April 30 (*Special Cable to* TEXTILE WORLD).—White shirtings have been in fair request for China, but grays have remained neglected. Egypt has been slow. All makers of fancy goods continue to extend their engagements. Deliveries from the mills of American yarns have been in excess of production. There is now a definite shortage of certain counts and complaints are being received of manufacturers being late in delivery through the scarcity. Overtures may be made to Master Spinners Federation to allow certain mills to run longer hours. A healthy trade is being done in Egyptian yarns.

It is understood that Vienna International Cotton Congress is to be postponed on account of French delegates objection to presence of Germans.

Manchester has continued to experience an active market. A considerable amount of business has been offering. The bulk of the demand continues for quick delivery. A feature has been the larger inquiry in gray shirtings for India and many makers have now more work to go on with than at any time this year. Many customers abroad do not yet fully realize the strength of producers here and spinners and manufacturers continue to derive advantage from any decline in raw cotton rates. Buyers generally, however, are not prepared to commit themselves very far ahead. The week's turnover in cloth has been encouraging. Light cloths, fancy materials and gray shirtings have moved off freely for India.

Index number for the week is 256.

Greek Export Inquiry

TEXTILE WORLD is in receipt of the following letter:

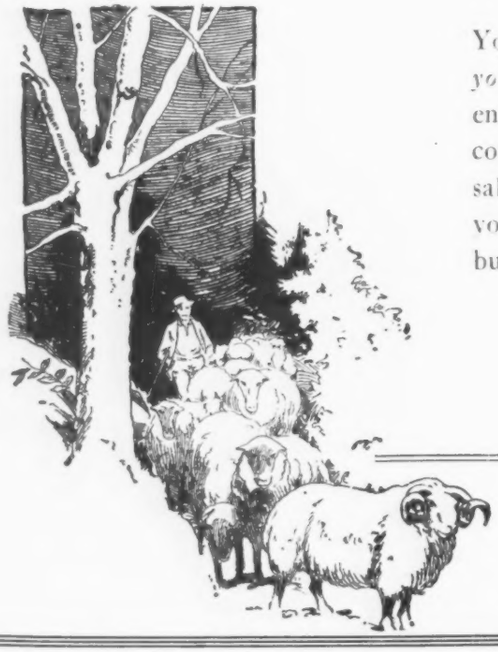
DEAR SIRS:

We take the courage of applying to you with the object of requesting you to kindly introduce us to some good firms for the export to Greece of various textiles, and wishing to be represented by us.

Owing to the experience we have, and the best clientele as well, we can say that any firm wishing to do business with us would remain fully satisfied from every point of view.

References: Any firm wishing to be represented by us can apply for references to the Athens branch of the Bank of Athens.

We shall be glad to furnish the name of the above inquirer to any interested mill or commission house.



The Public and You

Your responsibility to the public rests with you for *you* are the public. A conscientious management endeavors to protect the best interests of those who contribute to the manufacture, transportation and sale of its goods and to give dependable values to you and to themselves, who are the *public* who buy them.

American Woolen Company
Wm M Wood, President

Selling Agency
AMERICAN WOOLEN COMPANY OF NEW YORK
18th to 19th Street on Fourth Avenue
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General Offices
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Talbot Mills
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FREDERIC S. CLARK, President
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Trade Mark Registered
ESTABLISHED 1857
Broadcloths Velours
Selling Agents
PARKER, WILDER & CO.
NEW YORK—BOSTON

Dunn Worsted Mills
WOONSOCKET, R. I.
Fancy Worsteds

Piece Dyes
BATTEY, TRULL & CO.
Selling Agents
New York Office, 257 Fourth Ave.

WOOL GOODS MARKETS

Waiting Game in Women's Wear Field

Ups and Downs of Style Regarded as Too Frequent—Cutters Await Labor Solution

The women's wear trade is playing a waiting game. Both sides of the market are increasing in caution. The desire for new things seems to have reached its most extreme point with an almost day-to-day fluctuation in popularity of certain fabrics. Strong efforts are being made both in the garment trade and also among mill agents, to stabilize the fashion trend by setting up a current of real style authority. As the best interests of the garment trade as well as of the fabric manufacturers are served by such stabilization, it is believed that the movement will eventually bear fruit.

Much that is now obscure will probably be cleared up by the middle of the current month. The strike prospect in the New York garment trade still looms ahead as this is written, and this must either materialize or be settled during this month. Mills which have sold to the garment trade are hesitating to manufacture too heavily against these orders, while the more conservative of the garment houses have hesitated to buy with the uncertain labor situation in view.

Conditions are not such as permit a clear view of the fall season and the fact that some of the new lines have not been supported as vigorously as at first expected is not so much a reflection on the lines themselves, as it is a reflection of the unsettled situation in the garment trade. There are said to be stocks in important hands and the best remedy at present seems to be curtailment of operations until the absorbing power of the cutting trade is reestablished.

Women's Wear Trade Notes

Keely & Watson are showing fall, 1924, lines of women's wear including coatings and suitings in tweeds and herringbones, together with mixtures, overplaids, checks and stripes.

William F. Reid & Sons Co. is showing fall lines of dress goods at $2.85 to $4.10 including twills, hairline stripes, crepes, cheviots and vigoreaux. In addition to the usual white hairline stripes, colored stripes of this class are shown.

Arthur G. Meyer & Co. have added 85 to 90 new numbers to the dress goods showing of the Jamestown Worsted Mills. Prices of the group range from $1.05 to $3.00 per yard.

A group of cotton warp crepes and other weaves is shown at 75 to 85c. The rest of the line includes crepes, serges, poplins, tricotines and twills in 38 shades. Clan and block plaids are shown, and also various fabrics with silk decorations.

C. M. Hoff & Co. are showing women's wear fabrics at $1.32½ to $2.80 including a wide variety of coatings, bolivias, cut block designs, plaid sport suitings, etc.

Ralph Bloom & Co. are showing a group of suede finish coatings for fall and dress fabrics in crepe and twill weaves. The former range from $4.25 to $5.85 and the latter from $2.50 to $4.75.

One of the large staple dress goods mills which recently went into the manufacture of fancy effects, largely silk decorations, is reported to be running its worsted department on a 80% basis.

Among Dress Goods Mills

PHILADELPHIA, April 30.—A prominent Philadelphia dress goods manufacturer states, in his opinion, this branch of the textile industry is back on a pre-war basis and from present indications will remain so, for some time at least. In other words this manufacturer believes the time is past when sufficient orders will be placed to run all weavers better than full time for long periods as in the war years and immediately afterward. He feels the market for his goods will again follow conditions in 1913 when about three months good business was secured followed by a similar period of smaller demand.

A slight increase in activity among mills was noted previous to Easter, which has disappeared to a large degree. A number express the opinion an improvement will be seen in demand for dress goods by May 15, after which they look for a run of fair business. They base this upon the fact that manufacturers have refused to stock staple goods.

At one of the largest Philadelphia mills it was said that they were not making a yard of goods for stock, but were closing their plants when no orders were available. This concern has a large stock of raw wool on hand which shows a profit at present prices and it is not going to take the risk of losing this advantage by putting the wool into goods which will not move.

Mills have not started on fall goods in most instances, a number stating they will not experiment with new lines until a more definite idea of the future trend is discernible. Powder blues, browns, dark tans and dull greens have been in most popular request, with woolen fabrics continuing in greater favor than higher priced worsteds. Blues have been specified more than any other color.

Mills making jersey cloth are endeavoring to turn out goods at $1.00 a yard as compared with $1.35 last season and $1.50 two years ago.

Stylers Looking at Spring, 1925, Season

Men's Wear Seeks New Color to Take Place of Powder Blue —Patterns a Problem

Stylers in men's wear mills are now busily engaged in preparing spring, 1925, lines. As usual there is a general searching around for data on which to base ideas for the new season. The method of showing the buyer a little of everything at the start of the season in the hope that something out of a great many combinations will strike the chord that is in tune at the moment, is a "drug store" method of doing business which is falling into disrepute. Consequently stylers are more anxious than ever to be as near right as possible with the minimum number of showings.

The success of powder blue fabrics for this spring and the coming fall, has made it evident that that color will probably have run its course by next spring and that something else will have to be found to take its place. One styler who has been watching the English trend, whence came powder blue, finds that an odd shade of tan, being formed from a mixture with a slight green cast is making headway over there. The prejudice to green casts in the American market will have to be overcome if this new shade is to find favor here. Some shade of the brown family however is due for popularity next spring because of the belief that grays and blues will have been overdone by that time.

The trend in patterns is not clear. Pencil stripes seem to be passé, though other stripe constructions on lighter grounds are still good sellers. Pin checks have not been eagerly sought and shepherd checks have been selling chiefly to the cap trade. There is some call for small block patterns. Glen Urquhart plaids are showing signs of life though clothiers will resist a move in this direction for the reason that the matching of plaid patterns in the back seam of the coat and elsewhere in the garment is a manufacturing detail which is a source of trouble and waste. Mixtures are good and further developments along this line are expected.

Men's Wear Trade Notes

Although the generally accepted story is to the effect that the men's wear market is slow, there is at least one selling agent who is getting business in excess of the ability of his woolen mills to produce, and who desires to get in touch with woolen mills which can make up some of this excess business.

Top coatings remain one of the best lines in the market. It is said by several who have looked over the field carefully that retailers are sold out of desirable top coats. They not only need more garments to take care of current business, but they will have to stock up from bare shelves for their fall trade in top coats.

One agency has had a good business in plaid back topcoatings. Because of the lightness of the fabric it is a difficult thing to manufacture in a double cloth.

Plaid face topcoatings are the best of this line. Light colors predominate.

Clothiers report a good business with the retailer in all lines for next fall, but the volume of reorders for fabrics do not yet reflect all of this business, agents believe.

Tropical worsteds are now benefiting from a last minute call to satisfy the summer trade.

Demand for powder blue in Palm Beach cloths for use during the next few months is noted. Buyers are reported to be reordering Palm Beach fabrics after using up their original allotments.

The cap trade has been buying shepherd checks on light grounds.

Charles J. Alexander will become associated with W. A. Singleton in the New York office of the Perseverence Worsted Co. about the middle of this month.

Bradford Market Moves Cautiously

Concessions to be Had on Some Sorts of Tops—Export Trade Slacker—Liverpool Sales

BRADFORD, ENG., April 30 (*Special Cable to* TEXTILE WORLD).—Bradford market is very quiet and the tone is somewhat flat. Buyers are cautious, but on the other hand sellers are also cautious and inclined to await result of sales at Liverpool and London.

Merinos are well established on the lower level recently set up and the larger topmakers adopt a firm attitude. Prices for future delivery are higher than for prompt delivery and nobody will sell on the assumption that wool will be cheaper two months hence. Cheap spot lots may be picked up from merchants or small topmakers who are willing to sell and take a profit, but there are few merino tops on offer. Concessions could also be obtained in some quarters on crossbreds, particularly fine qualities. Yarns are relatively stronger than tops and most spinners are firm at late rates.

Business has slackened and ex-

(*Continued on page* 179)

ESTABLISHED 1865

SCOTT & WILLIAMS

INCORPORATED

The Attention of Manufacturers is Invited to Our New MODEL K

Producing a fabric without lines, using a latch needle, permitting speed of production, the making of heavy heels and toes and perfect plaiting.

Increased width of top and a greatly pronounced loose course for looping are features of great value.

Established 1865

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Hamilton Ont.	High Point N. C.	Paris France	Barcelona Spain	Porto Portugal
Buenos Aires Argentine	Sydney Australia	Shanghai China	Osaka Japan	Milan Italy

KNIT GOODS MARKETS

Hosiery is Better for Quick Delivery

Last Week a Good One for Many Mills—What is the Future of Printed Merchandise?

Selling agents are conservative in describing the improvement which has taken place in the last few weeks on staple hosiery. Considering the market as a whole, it is unquestionable that good business has been put through, but mill representatives are cautious in discussing the extent and possible permanency of the improvement.

One of the largest mills on seamless goods in the country last week did the best week's business it has done since the first of the year. A similar statement is made by a commission house department head, who has been notably successful in moving merchandise during the dull period.

Despite doubts expressed in sections of the market it is not to be questioned that considerable business has been placed during the last few weeks on 176 needle half hose with transferred top; reports conflict sharply as to the prices at which this business was taken on established lines.

All-Fibres Very Good

All-fibre goods have been taken well consistently through recent months, and one mill which is understood to be in especially strong position on this merchandise booked an order this week for a respectable quantity to be delivered half in August and half in September. This order sets the limit for forward business so far booked on any line, handled by the house, according to its head.

There is no evidence of a slackening in demand for seven-eights goods with fancy tops; good students are confident that they will be good for at least several years to come. Combed and mercerized goods give no evidence of a turn for the better, and here the market remains decidedly on a trading basis, with all kinds of ridiculous prices heard.

Selling organizations handling both full fashioned and seamless goods report relatively better new business on the full fashioned. It is evident that a considerable increase in production will be registered in this section of the market this year.

(Staple **Hosiery Prices on Page 157)**

Hoisery Trade Notes

TEXTILE WORLD is in receipt of an inquiry from a responsible source for the name of a manufacturer equipped to turn out for sale purposes fancy

(*Continued on page* 159)

Knitted-Fabric Radio Horns

Interesting Specialty Business Developed on Fleece Lined Fabrics in Recent Months

By *Louis R. Keeffe*

AN interesting example of the ramifications of the radio industry is to be found in the increasing use of loud speaker horns made of knitted fabric. This is a comparatively recent development, the first orders from radio appliance manufacturers having been placed with underwear mills last October.

The business has been done quietly, and this is, to our knowledge, the first publication of any of its details. So far as it has developed to date it presents at least an interesting development of an entirely new market for the underwear manufacturer, regardless of the future possibilities in it from the standpoint of volume.

Fleece Lined Fabric Used

A half dozen or more mills in the Mohawk Valley and at least one plant in the South, have participated in the business placed to date. The fabric used in making the horns is nothing more than a regular fleece-lined underwear fabric, averaging in weight probably 9½ to 10 oz. per sq. yd., made of regular yarns, 20s, 22s, etc. The fabric is cut and sewed by the mill in the shape of the desired loud speaker, a special seam being used to prevent the junction in the fabric being unduly prominent in the finished horn.

Current quotations on this raw material for the loud speaker manufacturer approximate $1.50 per dozen for a ten inch bell (the diameter of the horn opening). It is understood that quantity orders have been placed at less than this figure.

Details of the process by which the cut and sewed knitted fabrics are converted into finished horns, said to be the best yet developed, are not available for publication. They are considered trade secrets, and the situation is complicated by the fact that a number of radio appliance manufacturers apparently hit upon the idea of the process at the same time, and each one considers himself the discoverer of it. One of the larger companies engaged in turning out knitted fabric horns for the radio trade is now awaiting the results of application for a patent on its process.

Essentials of the Process

Briefly described, however, the essentials of the finishing process are as follows: The shaped knitted fabric is pulled over an aluminum mold, a filler applied, hardened and baked in an oven, painted and finished. The form is removed during the process.

The horns are finished by representative manufacturers in a wide variety of colors, black, lavender and maroon being popular at present. The so-called crystal finish is applied to practically all these loud speakers.

According to manufacturers of the horn, and disinterested radio "fans," this knitted fabric loud speaker is the most satisfactory yet developed. The principal advantages claimed for it are mellowness of tone, elimination of vibration and relative flexibility. The finished horns are tough and not brittle; they stand up under rougher usage than is likely to be accorded them by the average radio devotee. Metal horns inevitably give forth a metallic tone, wooden and ordinary fibre horns are easily susceptible to cracking and chipping, it is claimed.

Horn Made of Fleece Lined Fabric

In addition, the process of finishing the knitted fabric loud speaker is comparatively simple, requires little handling, and is comparatively cheap.

A Limited Market

Representative underwear manufacturers who have participated in this business to date are under no illusions as to its permanency or volume possibilities. It is pointed out that in the course of development of an infant industry which is growing as fast as that of radio manufacture, this particular form of loud speaker may be supplanted overnight by something new, something better or cheaper.

Then, too, it is a matter of simple mathematics to figure out the limitations of the market for the knitting mill. Average estimates of the present number of radio sets in the country range from 5,000,000 to 10,000,000; the percentage of these equipped with loud speakers is large, but it is only a percentage. The radio people talk in large figures in speaking of the possibilities for future development in their industry, which is only natural, but the underwear manufacturer claims to have learned to accept their statements with several grains of salt.

The point of saturation unquestionably has not been reached, but there is also, and equally unquestionably, such a point of saturation. Loud speakers do not wear out like a suit of underwear; there is no expectation of a steady demand which will reach

(*Continued on page* 159)

Underwear Lifeless; Business Nearly Nil

Further Reductions in Light-Weights Would Interfere with Proper Pricing for Next Year

Underwear remains stagnant. There is absolutely no indication of worth-while movement in any section of the market for men's goods — the deadlock of the last two months or more remains unbroken. Selling agents in the New York market seem to have given up attempts to calculate how the situation will work out; they appear resigned to do nothing more than wait. What mills will do is, of course, another matter.

So far as light-weights are concerned, mill representatives are convinced that the part for them to play is to refuse to lower present prices, even at the risk of losing out on sizeable duplicate business. Present quotations are low enough, it is held, and if they will not encourage business reasonably lower prices would fail to do so.

Spot Cotton Comparisons

It is pointed out that the important thing to consider in the light-weight division of the market is the influence further reductions now or at any time before the close of the season would have on naming prices for next year. Opening prices last summer were based, theoretically at least, on approximately 22c. cotton. Present prices are not greatly in excess of the opening, while actual spot cotton is selling in the neighborhood of 31c.

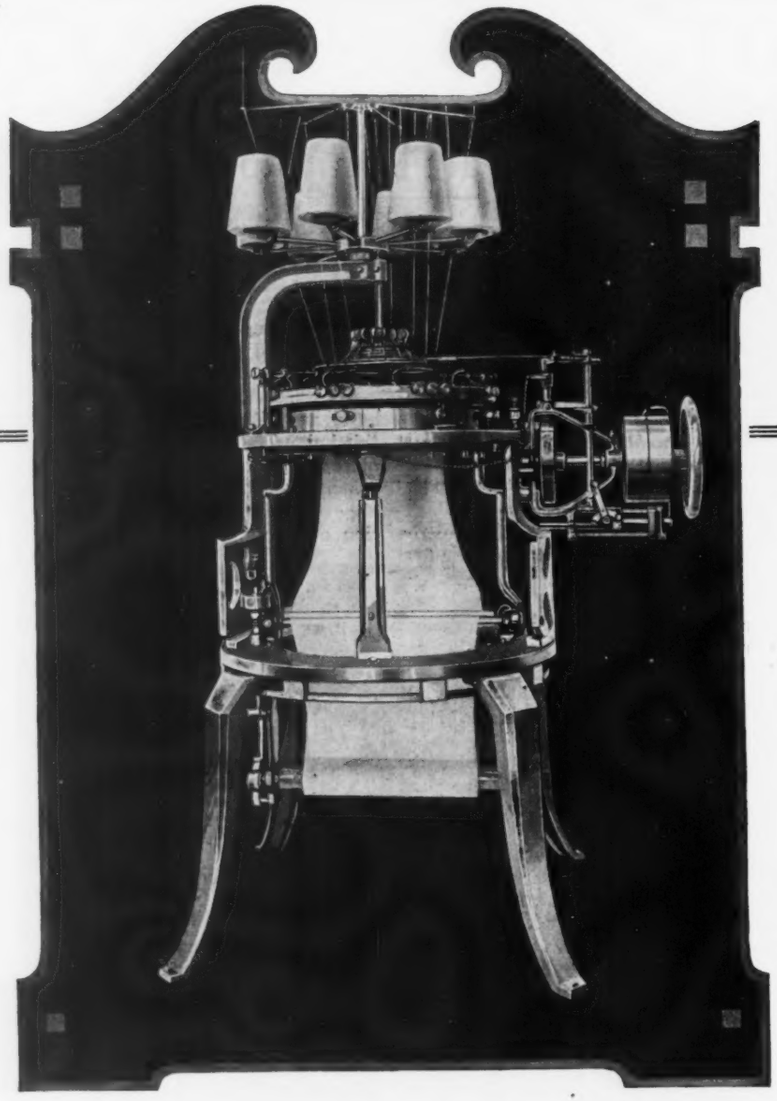
If further reductions in light-weights are made now it seems a fair conclusion to draw that mills will experience great difficulty in putting over the advances they will have to ask in naming prices this summer for next year's goods.

Underwear Trade Notes

In the absence of an actual panic, which is absurd in prospect, the men's heavy-weight situation seems a complete impasse. New York State mills have had an excellent demonstration of what they can expect to result from reasonably lower prices at this time. The cheap "sub-standard" 14 lb. suit announced a month or so ago by a prominent Utica manufacturer is understood to have been a "bust" so far as volume business is concerned.

The price put upon this garment, $12.50, is certainly one which most northern mills theoretically cannot meet, yet there was no rush of jobbers to place business on it.

As a test case, this seems to be thoroughly convincing. In the words of a close observer of the market: "It is distinctly up to all mills which



Wildman Spring Needle Body Machine

It is only to be expected that we should be proud of this highly perfected product of our shops.

It represents the accurate and painstaking workmanship that can be only arrived at through years of intensive effort directed towards the fulfillment of an ideal.

This perfection is very apparent in the construction of the hardened steel, needle cylinder in which cuts accurate to one-thousandth of an inch must be made.

Changes of stitch are controlled by graduated micrometer adjusting screws. The new style ball-bearing take-up keeps the cloth under absolutely uniform tension.

Let us send you an illustrated instruction book giving full information about the Wildman Spring Needle Body Machines.

TRADE MARK MFG

WILDMAN MFG. CO.

NORRISTOWN, PA.

We have issued a very complete and informative book, "The Science of Knitting." Price $3.00

Knit Goods Markets—Continued

can 'stand the gaff' to hold out for present heavy-weight prices. The situation we are now passing through is the result of nothing more than an intangible something which is wrong with sentiment. There is no real or fundamental reason for it, and this uncertainty will be wiped out eventually just as certainly as day follows night."

Robert Reis & Co., New York, report gross sales of $1,945,213 for the first quarter of 1924, as compared with $1,926,307 in the first three months of last year.

Stone & Warren are announcing their removal from the ground floor of 346 Broadway to the second floor of 366 Broadway, New York.

There is a large and increasing market in South China for cotton undershirts and woolen underwear, according to a recent bulletin of the Department of Commerce. Imports of this class of goods for 1923 amounted to approximately 50,000 dozen undershirts and 20,000 dozen garments of wool underwear. The cotton garments are mostly supplied by Japan, with England in second place. American manufacturers are not doing much business in South China at present. A list of importers of underwear in Hongkong is available at the Bureau of Foreign and Domestic Commerce, by referring to number 128072.

The Department of Commerce also reports that there seems to be a good market in the Amsterdam district of the Netherlands for American underwear of wool, half wool and cotton. Heretofore, Germany has been the chief competitor in this commodity, but due to the recent adjustment of her currency and the rise in price of all German goods, she has been practically eliminated from the Dutch market, leaving the field to England and the United States.

Trade Practice Action by Outerw ar Men

New Sub-Committee Formed to Take up Definite Complaints —No Market Improvement

A "good and welfare" sub-committee of the joint committee of the knitted outerwear industry, recently formed, was appointed at a meeting of the latter committee on Monday of this week at the offices of the National Knitted Outerwear Manu-

Staple Hosiery Quotations

Prices printed below represent fair average market values on staple hosiery in the New York market this week. They apply to average quality merchandise, in mill packing, sold to the jobbing trade. Ranges are necessary because of variation in quality, weight and terms.

Men's

144 needle, 1 lb. transferred top, looped toe	$.95–1.00
176 needle, automatic top, sewed toe	70–75
176 needle, transferred top	1 00–1.02½
220 needle, combed, double sole	1.60–1.70
200 needle, full mercerized, double sole	1.75–1.85
220 needle, full mercerized, double sole	1.80–2.25
220–240 needle, fibre plaited, double sole (mercerized top, heel and toe)	2.85–3.10
220–240 needle, silk and fibre twist, double sole (mercerized top, heel and toe)	3.25–3.50
240 needle, pure thread silk, 10 strand (mercerized top, heel and toe)	4.50–5.00
176 needle, all-worsted plaited over cotton, plain colors	3.50–3.62½
176 needle, worsted plaited ingrain heathers	3.62½–3.75

Women's

176 needle, 1¼ lb., hem top, sewed toe	90–95
176 needle, 1¼ lb., looped toe	97½–1.02½
220–240 needle, full combed, double sole	1.70–1.80
220–240 needle, full mercerized	2.25–2.75
344 needle, mercerized, ribbed-to-ankle	3.25–3.50
344 needle, mercerized, ribbed-to-toe, light weights	3.50–3.75
220–240 needle, plain fibre, 3 seam back, 18–20 in. boot (combed top, heel and toe)	2.90–3.20
220–240 needle, plain fibre, 3 seam back, 18–20 in. boot (mercerized top, heel and toe)	3.35–3.50
(All-fibre goods in fancy stitches, 5–15¢ over above prices.)	
240–260 needle, silk and fibre twist (mercerized top, heel and toe), standard goods	
20 in. boot	5.75–6.00
22 in. boot	6.00–6.25
240–260 needle, silk plaited over fibre, 20 in. boot (mercerized top, heel and toe)	6.35–6.75
240 needle, pure thread silk, 12 strand, 20 in. boot (mercerized top, heel and toe)	— —

Children's

28 oz. misses' ribs (on 7; rise 5¢, fall 5¢)	1.00–1.05
Boys' 3 lb., 1x1 ribs (on 8; rise 10¢, fall 5¢)	1.90–2.10
300–344 needle misses combed (on 7; rise 7½¢, fall 5¢)	1.65–1.85
300 needle misses' full mercerized 1x1 and 6 x 4 ribs (on 7; rise 10¢, fall 5¢)	2.35–2.60
344 needle misses' full mercerized, as above	2.65–3.00
Children's ⅞ lengths, full mercerized, ribbed leg, circular ingrain top (average 7 to 10)	3.25–3.50
Children's ⅞ lengths, as above, jacquard tops	3.50–3.75
Infants' socks, full mercerized, fancy tops	1.50–1.75

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The mark of a great industrial service — of an organization of winding engineers and complete equipment for manufacturing winding machines.
This mark is inscribed on every Universal Winding Machine.

"Supercone" Superiority

KNITTING MILLS feeding spring needle machines from "Supercones" wound on the No. 80 Universal Winding Machine are enthusiastic in their praise of the economies and advantages of the "Supercone."

— ten hours continuous running without stopping to renew yarn supply, practically doubling the run when other forms of yarn supply are used.

Waste is reduced, production increased, quality of finished product improved and production costs materially lowered.

— "Supercones" wound on inexpensive paper cones eliminate the big investment and upkeep of expensive wooden bobbins.

Operators prefer the "Supercone," as they have fewer motions to make, no heavy bottle bobbins to carry and they doff "Supercones" but twice a day.

The "Supercone" and the No. 80 Universal Winding Machine are Leesona products — representative of the great industrial service that has improved, by scientific winding, many industries throughout the world.

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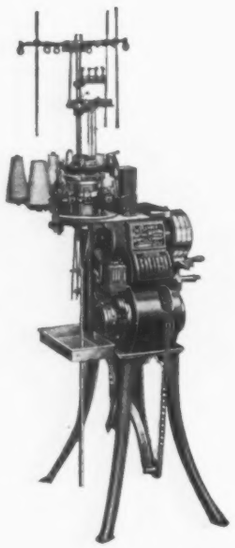

THE
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IN
THE KNITTING FIELD

Making all grades of Hosiery in a more attractive manner than ever before

HEMPHILL COMPANY

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PAWTUCKET, RHODE ISLAND

Southern Office
James Building
Chattanooga, Tenn.

THE BANNER KNITTER

New York Sales and Show Room
350 BROADWAY, NEW YORK

Philadelphia Office
Colonial Trust Bldg.
Philadelphia, Pa.

Knit Goods Markets—Continued

facturers' Association, New York. This sub-committee will endeavor to put into practice some method of discouraging the wrong manufacturing practises which were the reason for the formation of the original committee.

The sub-committee is composed of Daniel Rheinauer, president of the outerwear manufacturers association, eastern district; Stanley Steger, of the National Association of Worsted and Woolen Spinners; S. Rottenberg, of the Wool Yarn Jobbers Association; and William Kaufman, of the Knitted Outerwear Distributors.

The mode of procedure of the new sub-committee will necessarily be advice and suggestion to the members of the industry against whom complaints are levelled with it. It is pointed out that it can hardly expect to exercise compulsion.

Knitted Radio Horns

(*Continued from page* 155)

sizeable volume over a considerable period of years.

It may also be pointed out that the manufacturers of loud speakers, with a few notable exceptions, are operating under difficulties of lack of capital which make them something of a credit risk for the staid underwear industry.

Representatives of mills who have obtained respectable slices of the business placed to date feel that this new outlet for their product does not amount to more than a drop in the bucket, when all is said and done. The business has been especially welcomed during the last few months because of restriction of business on established lines, specialties as well as underwear itself.

Intelligent observers doubt, however, that it will ever amount to more than an unusually interesting example of how a new outlet can spring up almost overnight. Selling agents cite the duplicate orders they have received, amounting to as little as 50 dozens, in instances.

Some Radio Enthusiasm

On the other hand, one of the largest manufacturers of these knitted fabric loud speaker horns is enthusiastically optimistic about the permanency of the business, from the knitting mill's standpoint as well as his own. He claims to be sold up to July, 1925; he says he has orders on his books for 1,500,000 horns, which have not yet been covered by orders to knitting mills for his raw material. The same authority states that he placed one order with one underwear mill for 600,000 units of his raw material. He cites the case of one distributor of branded equipment who has sold 300,000 loud speakers since October in New York City alone.

However all this may be, it is not to be questioned that the radio industry presents, and will present, opportunities for the development of new business to various branches of the textile trade. The use of cotton and silk yarns for insulating purposes, for example, has been enormously increased by the sweep to popularity of the radio, and this business bids fair to expand rather than contract. This, however, is another story.

Hosiery Trade Notes

(*Continued from page* 155)

tops for seven-eighths goods. We shall be glad to forward the names of any mills desiring business of this character to our inquirer.

It is apparent that the vogue of the more extreme high colors will probably be short-lived. A competent observer states his opinion that most of the light colors with a reddish or orange tinge will shortly go by the boards.

This in no wise changes the confidence of most capable men in the market that light colors as a class will continue popular through the summer and probably for some time after.

A question which is puzzling some of the "best minds" is how permanent is the business which has been built up during recent months on all-fibre goods. Will it degenerate with the eventual decline in popularity of the nudes and semi-nudes?

Representative selling agents who have taken no part in the development of printed hosiery to date are wondering whether to kick themselves or congratulate themselves. Nothing much has been said about this business by those who have been most active in it, which has sometimes been ascribed to the fact that there has been nothing much to say.

In other quarters, however, it is understood that this reticence has been due to natural desire to keep a good thing confined as much as possible. It is said on good authority that several mills have done an excellent business on printed mercerized half hose. All sorts of merchandise has been printed experimentally, and a good deal of it is reported not to have taken on well.

Women's printed wool and worsted goods, for instance, enjoyed quite a vogue for a time, but several competent authorities are sponsors for the statement that this business has been killed, for the time being at least. Samples of a line of printed full fashioned worsted goods were shown some time ago by one large house, but it is understood that actual business booked has been practically nil.

Perhaps the chief difficulty in turning out satisfactory printed merchandise is that experienced in locating a good printer. Much trouble has been experienced with fugitive colors, irregular application, etc., and those who have succeeded in establishing contact with a concern doing satisfactory finishing work of this character are not keen to make their discovery known generally.

"PARAMOUNT METHOD"
FABRIC HOLDER

The PARAMOUNT Fabric Holder is one of the greatest developments in the art of finishing hosiery. It prevents the goods from creeping up during the drying process and the following advantages are all direct results of its use:

Uniformity of length.
No disfigurement of goods.
Less work for pairers.
Goods lie better in boxes.
Improved finish of the product.

PARAMOUNT FORMS and METHOD OF FINISHING have been developed to meet every requirement of correct finishing.

With PARAMOUNT EQUIPMENT you are assured of an increased selling value in your merchandise, greater production and fewer seconds. You will find a large saving in labor, steam and floor space, improved factory conditions and satisfied help. If interested, our representative will call, DEMONSTRATING IN YOUR OWN MILL WITH YOUR OWN PRODUCT the improved results obtained by finishing on Paramount Drying and Shaping Forms.

You can secure Paramount Equipment on either a Sales or Rental basis.

Complete equipment can be seen in New York Office, 366 Broadway.

Address all correspondence to Chicago Office.

Paramount Service Goes With All Paramount Products

PARAMOUNT TEXTILE MACHINERY CO.

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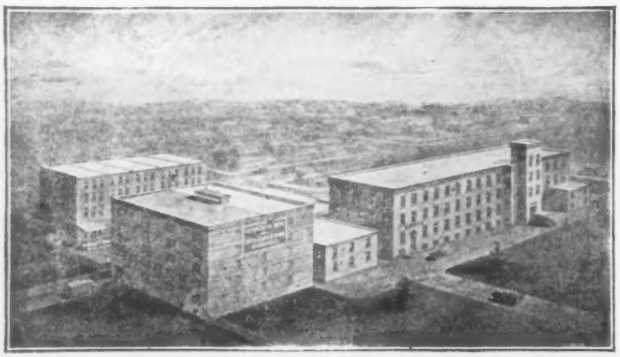

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Pioneers in Providing Mills]With Markets for Waste

The Charles organization blazed the trail in providing textile mills (including *knitting* mills) with markets where waste products could be profitably disposed of.

Thirty-seven years of business have served to increase the number of our customers, and the variety of our interests. In this time we have earned a reputation for fair dealing and absolute reliability.

Scotch Blackfaced for Carpet Trade
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Yearly Contracts Made for Entire Waste Accumulations of

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HOSIERY MILLS

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Textile Department

Selling Agents for Cotton Yarn Spinners in Counts Ranging 8s to 30s Single Cones and 16s to 60s Combed and Carded in 2 and 3 Ply Cones and Skeins. Converters of Cambric, Sateens, and Threads for Underwear Trade.

Specialties	Correspondence Solicited	Import and Export Packers for Spinning and Fine Paper Trades
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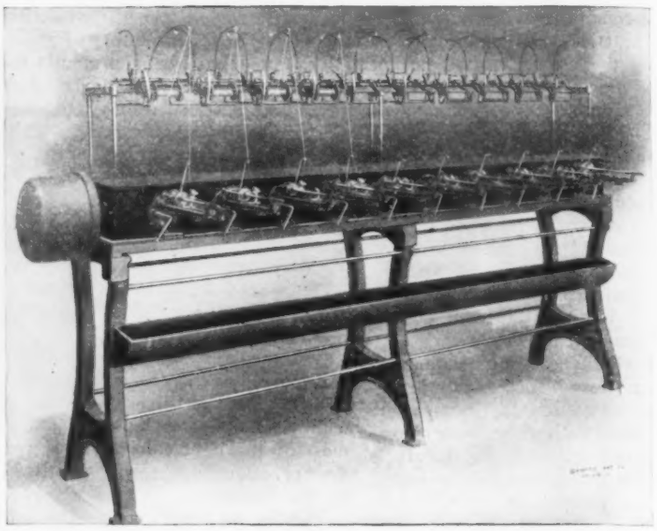

The New
High Speed Winder
for
Silk, Art Silk, Fine Cotton and Worsted

To Wind on Paper Tubes and Quills

All Parts Interchangeable
Ball Bearings Throughout

LEVER CO.

11th & Cambria Streets
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SILK GOODS MARKETS

Retail Buyers See Broadsilk Bargains

Low Prices Bring a Good Response --A Turn Thought to be Near at Hand

The silk district is becoming one vast bargain counter. Prices now being quoted make this statement a correct one and the similarity is heightened additionally by the hordes of eager retail buyers who are taking advantage of them. Buyers are in New York from all over the country searching for cheap lots for their special May and June sales. They are combing the market for distress merchandise and finding no dearth of desirable goods at their own prices. Printed georgettes and crepe-de-chines made to sell at $1.75 are moving at $1.25. The price cutting is sharpest in the prints but very low prices are obtainable on staple lines as well.

A large volume of goods is moving without question. The South seems to be about the best customer at the moment but all sections of the country are taking merchandise. May is normally a month that is in-between seasons and apparently the stores have counted upon this fact. From all appearances they have held off until the manufacturer is glad to get rid of his goods at the buyers' prices.

From all reports the South is buying not only for sales but to replenish stocks which have become sadly depleted by a good retail business coupled with a hold-off buying policy. It may not be long before this condition becomes general. Production has been below par in silks for about a year and it is not thought that an excessive glut of goods is overhanging the market despite the talk of excessive stocks that has been going the rounds. If the current demand keeps up a shortage of desirable goods would not be surprising in a month or so when the fall season will begin to get under way. The attractive prices which silk goods can be made up and sold at on the basis of raw silk at from $5.50 to $6.00 will make for a big fall season in silks.

Broadsilk Trade Notes

Not only are the staple crepes and printed numbers being taken in large volume but there is also a good call for taffetas and foulards. The latter have been more or less a retail proposition for quite awhile. With the retail buyer now the chief factor in the market the increased interest is easily explained.

Titian, sand, and citrine are among the new shades being brought out. An encouraging response has been noted but the buyers state that this is significant of nothing other than they have to take them to try them out.

The best sellers right now according to the testimony of one large store are the wash silks, plain crepes, printed crepes, flat crepes, and plain Cantons.

The cutters are now partial to the ribbed silks for coats, wraps, and suits. The heavier weight materials are favored for the fall.

The Post & Sheldon Corp. are now located in their new quarters at 381 Fourth Ave., New York, where they occupy the entire second floor.

The predominating feature of the new skirt showings, according to the United Skirt League of America, is pleating. Clustered pleats are most in favor, and also fine pin pleatings. Crepe, flat backed satin and alpaca are the fabrics used. Color is introduced in many models by insets of colored silk in horizontal stripes above the hem and by the use of ribbons as a hem finishing, the whole being pleated into the complete garment. Black thus combined with Roman stripes, makes a garment that is suitable for wear either with a bright colored silk sweater, or separate blouse. Another novelty is of two materials, a colored or white slip being used under a black skirt with rows of hemstitching to show the underskirt through.

SILK SITUATION AT A GLANCE

PRODUCTION:	**Holding steady.**
DEMAND:	**Improved, cheap lots being taken off market rapidly.**
STOCKS:	**Unchanged to slightly smaller.**
RAW SILK:	**Stocks light in New York, prices stronger.**
SENTIMENT:	**Belief is that low prices will mean big fall season in silks.**

ACTIVE SILK STOCKS ON NEW YORK STOCK EXCHANGE

1923 (Week ending April 29th)

High	Low	Stock	Sales	High	Low	Last
36⅞	28	Century Ribbon Mills	400	29	27½	27½
45⅞	28	Julius Kayser	100	22	22	22
40	21	Mallinson & Co	1200	19½	19⅛	19⅛
64	27	Van Raalte	200	20	20	20

Winners in Bowling League

LAWRENCE, Mass.—Male employes of the Wood Mill and women operatives in the Prospect Mill won the championships in an inter-mill bowling league for the employes of the local mills of the American Woolen Co. In addition to team prizes, individuals were given valuable prizes at a recent banquet. The speakers at the banquet were the following: Agent Walter M. Lamont, Wood Mill; Agent Clapp, Prospect Mill; Agent Johnson, Washington Mill; Agent Ingraham, Ayer Mill; Ignatius MacNulty, labor department; Howard O. Frye, editor of the company's publication.

SUMMARY OF SILK CABLES

Best No. 1—Yokohama	**1850 yen**
Exchange at 3 m/s	**41**
Price C. I. F. New York	**$6.05**
Stocks, Yokohama, April 20th	**31,300 bales**

The extremely heavy buying in the Yokohama market continued without any signs of a let-up throughout the past week. The activity in that center has now kept up for 10 days. Starting on April 18th when sellers agreed not to sell under 1800 yen for XXA, transactions have ranged from 1200 bales to 3000 bales a day. All told close to 20,000 bales have been taken by exporters. The current week has seen the widest advances in prices. A 10 yen advance on Friday was followed by a larger jump of 30 yen on Saturday accompanied by transactions of 2000 bales. A 50 yen advance was paid the following Monday with 2100 bales bought. This was extended slightly further later in the week and closing prices of 1930 yen for XXA and 1850 yen for Best No. 1 represent an advance of 130 yen from the bottom Exchange rallied sharply later on after breaking to a new low below 39 for sight in New York. Estimates as to the size of the spring crop indicate a supply slightly larger than last year. Spring egg cards for hatching are stated to be 2,252,000 an increase of 2½% over 1923.

May Usually Quiet Month in Ribbons

No Startling Change Expected During Present Month—Stripes and Plaids Active

May as a general rule is an in-between month in ribbons. The cutting-up trade is not yet concerned with its fall lines and retail buyers are not in the market actively. For this reason no startling change in the present situation in the ribbon market is looked for during the coming thirty days. Somewhat more demand than usual may be experienced due to the attractive low prices now being quoted. Another reason for greater than usual activity is seen in the fact that advance buying this spring has been far below par. On the whole, however, while replacement buying may be larger than in past years, no change of importance is expected.

The stripes and plaids continue to be taken in volume and manufacturers' stocks of these sorts are not thought to be large. The wider types in the soft crepes show no signs of diminishing in their popularity. Rather the call for them is increasing despite the competition with the cut lengths of silks which many stores are offering. The narrow novelties are also coming back strongly as noted previously in these columns.

Raw Silk Higher

Increased Demand in Local Market Finds Stocks Small

While the heavy buying in Yokohama did not at first find any reflection in the local market, as time wore on and the activity did not diminish manufacturers here experienced a change in sentiment. Encouraged in addition by the strengthening of Yen exchange, many bought largely with cases not exceptional where users covered themselves through June and, in some instances, into the fall. An increased inquiry likewise for spot and nearby deliveries found stocks in importers' and dealers' hands small and poorly assorted. A shortage is reported in such odd sizes as 16/18, 18/20, and 24/26 and desirable lots of 13/15 in the crack grades are very difficult to procure.

Prices are as follows:

(90 day basis)

Japan Filature, Dbl. Extra A, 13/15	$6.30
Japan Filature, Dbl. Extra B, 13/15	6.25
Japan Filature, Extra Best, 13/15	6.20
Japan Filature, Extra, 13/15	6.15
Japan Filature, Best No. 1/x, 13/15	6.10
Japan Filature, Best No. 1, 13/15	6.05
Canton Filature, New Style, 14/16	5.35
Canton Filature, New Style, 20/22	5.00
China Steam Filature "Anchor" Grade	7.20
Tsatlee Reeel "Blue Dragon & Flying Horse"	5.50
Tussah Filature, 8 cocoon	3.50

Pearsons-Taft
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Company

WE specialize in and invite enquiries concerning Textile Financing

We Offer:

	Yield
Maverick Mills 1st Mtg. 7's	7.00%
Graniteville Manufacturing Co. 1st 7's	6.75%
Phoenix Silk Mfg. Co. 1st 7's	7.00%
Johnson, Cowdin Emmerich 1st 7's	7.10%
Salts Textile Co. 1st 8's	7.00%
Martel Mills 1st Mtg. 7's	7.20%
New Jersey Worsted Spinning Co. 1st 8's	7.25%
Duncan Mills 1st Prefe'd	7.00%

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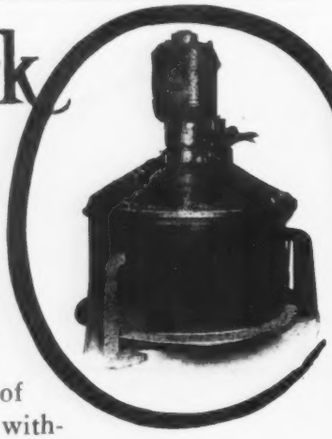

In plants where floor space is at a premium and where every extractor must carry its full burden of work at a lower cost and without costly delays for repairs

FLETCHER VERTICAL MOTOR DRIVEN EXTRACTORS are invaluable.

These extractors will pay for themselves in dollars and cents in a very short time.

Let us prove this to you. A postal will bring complete information.

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THE MERCHANTS NATIONAL BANK OF BOSTON

We Are Equipped To Serve

our customers in many ways. Our organization includes the following departments:

General Banking	Safe Deposit
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Through these departments we not only perform the services ordinarily expected of a commercial bank but co-operate with our customers in their financial and industrial problems.

The Merchants National Bank of Boston

FINANCIAL MARKETS

Renewed Interest in Textile Shares

Certain Regular Investors Believe Values of High-Grade Shares Are Near Bottom

BOSTON, April 30.—Local bankers whose clientele includes many regular investors in textile shares state that many of the latter are showing renewed interest in the financial status of mills whose securities are generally classed as high-grade, and believe this to be preliminary to the accumulation of such securities at prices that may mark the bottom of the market for the year. These investors are particularly interested in the status of mill inventories and quick assets, believing that those mills which have reduced inventories well below normal averages and whose percentage of quick assets is not far from normal are likely to become a good buy within the next two months provided their share values appear to have fully discounted all unfavorable factors. These shrewd operators look for no marked improvement in the business situation before the fall, but they believe that current stock values of the most active listed and unlisted textile securities have already discounted practically all unfavorable factors, and are likely to discount improved business well in advance of the actual development of the latter.

A number of additional mills have passed their current dividends during the last few weeks or have reduced their payments, but the number that are maintaining their dividend rates is surprisingly large. With few exceptions the latter are mills that have accumulated substantial reserves for just such contingencies, and in many cases might maintain dividends even though business should continue unprofitable for the next six months. On the other hand, a number of the mills that have decided to reduce or pass their dividends are merely adopting an ultra-conservative policy, and by refusing to diminish their reserves should be in an exceptionally strong financial condition if business picks up within the next six months.

American Woolen and Amoskeag

Although American Woolen common advanced during the week from last week's low of 62 to a high 66⅞ it has again been subjected to heavy selling pressure and closed today at 63 a net loss for the week of 1⅛ points; the preferred in the meantime has reached a new low of 96¼, a net decline for the week of 1¾ points. Amoskeag preferred remains firm at 74, but the common reached a new low of 65 on Monday, recovering today to 66, or a decline for the week of 2 points. Pacific has been in fairly active demand and sold as high as 82 yesterday, closing today at 81½, or a point gain for the week.

Boston Stock Auctions

The following sales of textile shares were made at today's auctions

Shares	Mills	Par	Price	Chge
12	Arlington	100	100	—1¾
13	Conn. Mills com. Cl. A v. t. c.....	100	2	.....
1	Ludlow Assoc.	100	143¼	+1¼
1	Waltham Bleach & Dye	100	77	—14
10	Plymouth Cordage..	100	108⅞	+ ¼
37	Total			

Cash Dividends

	Period	Amount	Payable	To Stock Of Record
Hoosac Cotton Mills pfd.	Qtly.	$1.50	May 15	May 5
Quissett Mill	Qtly.	2.00	May 15	May 5
Butler Mill..	Qtly.	2.00	May 15	May 5
Pacific Mills	Qtly.	1.50	May 1	Apr. 23
Merrimack Mfg. Co.	Qtly.	1¾%	May 31	Apr. 28
Roxbury Carpet pfd....	Qtly.	1¾%	May 1	Apr. 29
Nashawena Mills	Qtly.	2.00	May 6	Apr. 29
Mass. Cotton Mills		3.00	May 10	Apr. 22

Fewer Shares Offered

Many New Bedford Issues Savor of Bargain Rates

NEW BEDFORD, MASS.—Although New Bedford mill shares have not shown any disposition to increase in value during the sustained depression during the month of March, brokers report that there are probably less stocks offered for sale than for many weeks, and there is a feeling that most of them have touched the low mark that they will register. In some instances there has been a slight reaction upwards, though production in the mills of the city for the month just closed has probably been smaller than at any time in the last four years.

If the mills of New Bedford ever return to normal times in the textile industry, many of the shares offered for sale at prevailing levels should net the investor profitable returns. In some cases, issues are on the market at 50% of the price asked two years ago, being available at a little better than par and bearing regular dividends of $2 quarterly.

Wamsutta stock appears to hold its own, with sales at both 93 and 94 that compare favorably with previous transactions in these shares. Nashawena has shown a slight weakening, and is now offered for 107, with a bid price of 104. In view of its past returns, this stock is one of the cheapest offered today. The yield for the past three years has been $8 annually, while in 1920 and 1919 it yielded $16 each year, and $14 in 1918, or an average of $11.66 for the last six years.

Manomet Shows Slight Gain

Manomet, after falling to the lowest mark of any of the local stocks with sales around 40, has apparently touched the bottom, and has sold within the last few days at both 43 and 44. This stock has been offered in somewhat large quantities for several weeks, but the available supply appears to have been exhausted except for stray lots. The bid price has strengthened 1½ points within the last few days, and what few issues are now offered are mostly held around 45.

Nonquitt is offered at slightly under 70, with some demand noted at a bid price of 65. This stock has been paying $1.50 quarterly after passing the dividend early last year. At its present asking price, the stock offers a return of better than $8.50 yearly. Rumors have been current that the dividend for the second quarter may again be either passed or decreased. City sold at 126, the stock yielding $2 for the second quarter, the same that has prevailed for the last three years. Fairhaven preferred realized 75 in the last sale of the stock, this figure being the same as is asked for Fairhaven common.

Kilburn changed hands at 148, with an unconfirmed sale as high as 150. More of the stock is available around 155, while Sharp preferred sold at 60, the general asking price on this stock being 62. Sharp common is held around 50, with some call for the stock at 45. Quissett, one of the highest priced issues in the yarn mills, is offered in some quantity at 195, with sales reported just below 190. Dartmouth common is offered 2½ points lower than for several weeks, being available at 140, the bid price being 5 points below this figure. Butler also eased off slightly, being offered at 125, or 7½ points higher than the bid price.

Stocks Again Move Upward

GASTONIA, N. C.—Although the volume of sales in cotton mill stocks last week was not up to the preceding two weeks, prices held firm and a large number of the shares registered advances, according to F. S. Dickson & Co., of this city and Greenville, S. C. The average of 25 stocks as released by this company stood at 126.24 against 125.88 for the previous week, a rise of 36 points. The stocks showing gains include Acme, Brogon, Eagle, Gaffney, Judson, Mollohon, Pacolet and Victor-Monaghan, while the only noticeable decline was in American Spinning which was marked down $10 in bid price and a decline of $3 in Musgrove. The most active trading in North Carolina stocks took place in Eagle, Stowe Spinning, Perfection and Mooresville, several lots of each changing hands at slightly improved quotations for each transaction. There was also light trading in China Grove and Rowan stocks.

Market Without Trend

SPARTANBURG, S. C.—The week has been marked by no definite trend of prices in trading, according to A. M. Law & Co., but has been one marked by more or less of a deadlock, the sellers being unwilling to lower their prices to figures that would appeal to buyers, who are again looking for bargains. In most instances where there have been changes in prices, it has been downward except preferred stocks. This latter class of securities has felt a good investment demand, especially Union-Buffalo first preferred, Bolton preferred, Monarch preferred, Judson preferred, and Pacolet preferred. There have also been a good many calls for Orr preferred. It is hoped that the fiscal year ending April 1 of various mills will not show excessive inventories, especially if carried at high prices. The financial position of most of the large cloth mills is so satisfactory, however, especially their banking ratios, that reasonably large inventories can be carried without any fear of forced liquidation.

New England Textile Stocks

(Quotations based upon last sales at Boston public auction and Boston Stock Exchange.)

	Latest Sales	Previous Sales
American Woolen, pfd.....	96¼	98¼
Amoskeag, com.....	66	68
Androscoggin	142½	145
Appleton	720	760
Arlington	101¾	102¼
Bates	235½	235½
Bigelow-Hartford, pfd...	114½	114½
Boott	135½	.....
Edwards	115	110
Esmond, pfd	93½	101
Everett	129	120¼
Farr Alpaca.....	180	182⅜
Great Fall	23½	24
Hamilton Woolen	95½	95
Hamilton Mfg.....	44¼	47⅝
Jill	150⅞	149
N. E. Southern, pfd.....	63	65
Ipswich, com.....	40	42
Lawrence	71¾	82
Ludlow Association.....	143¼	142
Lyman	142¼	145
Massachusetts	144⅜	144⅝
Merrimack	102½	100½
Nashua, com.....	80¼	81⅝
Naumkeag, New.....	195	195
Newmarket	140	135
Pacific	81½	81
Plymouth Cordage.....	108⅝	107⅜
Tremont & Suffolk.....	108⅞	108½
York	122	125½

Miscellaneous Stocks

(Reported by M. H. Wildes & Co., Inc., 30 State Street, Boston, Mass.)

	Bid	Asked
Arlington Mills.....	101	104
Bates Mfg. Co.....	185	195
Bigelow-Hartford Carpet Co., com.....	106	108
Brookside Mills.....	145	.....
Columbus Mfg. Co.....	130	.....
Dwight Mfg. Co.....	.....	67
Edwards Mfg. Co.....	85	95
Everett Mills.....	120	130
Farr Alpaca Co.....	174	177
Gluck Mills.....	125	.....
Great Falls Mfg. Co.....	21	25
Hamilton Mfg. Co.....	39	41
Hamilton Woolen Co.....	91	93
Lancaster Mills, com.....	113	117
Lancaster Mills, pfd.....	96	100
Lawrence Mfg. Co.....	.....	60
Lowell Bleachery.....	128	.....
Ludlow Mfg. Associates.....	141	143
Lyman Mills.....	137	141
Massachusetts Cotton Mills..	140	144
Merrimack Mfg. Co., com....	98	102
Merrimack Mfg. Co., pfd....	75	80
Nashua Mfg. Co., com.....	.....	76
Nashua Mfg. Co., pfd.....	98	100
Naumkeag Steam Cotton Co.	175	182

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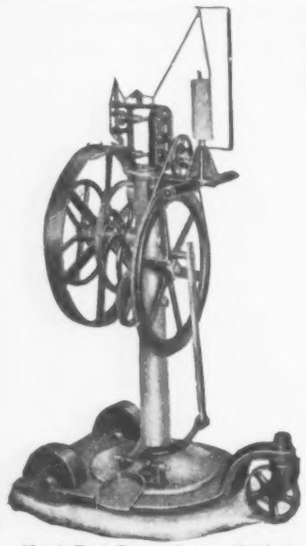

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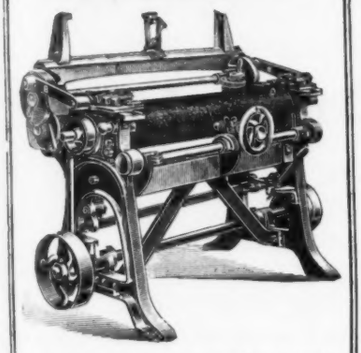

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Its uses are—

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2. To correct occasional high flats
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ECONOMY IN CARD-CLOTHING

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Principal Importers
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THE DRONSFIELD

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MANAGING AGENTS

Financial Markets—Continued

	Bid	Asked
Otis Co.	108	111
Pepperell Mfg. Co.	....	124
Plymouth Cordage Co.	108	110
Tremont & Suffolk Mills	97	104
Waltham Bleachery & Dye Works	85	90
Warwick Mills	....	100
West Point Mfg. Co.	130	133
York Mfg. Co.	101	....

Fall River Mill Stocks

(Quotations furnished by G. M. Haffards & Co.)

	Bid	Asked
American Linen Co.	50	...
Arkwright Mills	...	40
Barnard Mfg. Co.	90	...
Border City Mfg. Co.	...	102
Borden Mfg. Co., Richard	...	118
Bourne Mills Co.	140	...
Chace Mills	...	70
Charlton Mills	...	130
Cornell Mills	...	145
Davis Mills	...	105
Davol Mills	...	95
Flint Mills	120	130
Granite Mills	...	95
King Philip Mills	...	155
Laurel Lake Mills, com	...	40
Lincoln Mfg. Co.	...	...
Mechanics Mills	...	90
Merchants Mfg. Co.	...	130
Narragansett Mills	...	...
Osborn Mills	...	70
Parker Mills, com	...	35
Parker Mills, pfd	...	75
Pocasset Mfg. Co.	...	60
Sagamore Mfg. Co.	...	255
Seaconnet Mills	3	...
Shove Mills	...	70
Stafford Mills	...	92
Stevens Mfg. Co.	100	...
Union Cotton Mfg. Co.	...	138
Wampanoag Mills	85	...
Weetamoe Mills	...	87

New Bedford Quotations

(Quotations furnished by Sanford & Kelly)

	Bid	Asked
Acushnet Mills	115	...
Beacon Mfg. Co., pfd	100	...
Booth Mfg. Co., com	145	155
Booth Mfg. Co., pfd	112	...
Bristol Mfg. Co.	...	190
Butler Mfg. Co.	117½	125
City Mfg. Co.	130	...
Dartmouth Mfg. Co., com	135	140
Dartmouth Mfg. Co., pfd	85	92½
Fairhaven Mills, pfd	70	80
Fairhaven Mills, com	65	75
Gosnold Mfg. Co., com	...	120
Gosnold Mfg. Co., pfd	90	...
Grinnell Mfg. Co.	125	135
Hathaway Mfg. Co.	150	...
Holmes Mfg. Co., com	...	260
Holmes Mfg. Co., pfd	110	...
Kilburn Mill	...	155
Manomet Mills	42½	...
Nashawena Mills	104	107
Nelld Mills	225	250
N. B. Cotton Mills	105	...
N. B. Cotton Mills, pfd	94	...
Nonquitt Spinning Co.	65	...
Pierce Mills	...	490
Potomska Mills	106½	...
Quissett Mills, com	180	195
Quissett Mills, pfd	100	...
Sharp Mfg. Co., com	45	...
Sharp Mfg. Co., pfd	58	62
Soule Mills	...	175
Taber Mills	112	...
Wamsutta Mills	92½	95
Whitman Mills	145	155

N. Carolina Textile Stocks

(Taken from list of Southern Mill Stocks quoted by R. S. Dickson & Co., Gastonia, N. C., and Greenville, S. C.)

	Bid	Asked
Acme Spinning Co.	101	....
Am. Yarn & Processing Co.	102	106
Am. Yarn & Processing Co., 8% pfd.	103	....
Arlington Cotton Mills	110	116
Arrow Mills	90	95
Cabarrus Cotton Mills	150	....
Cabarrus Cotton Mills, 7% pfd.	104	....
Cannon Mfg. Co. (par $10)	14	....
Chadwick-Hoskins Co. (par $25)	18	....
Chadwick-Hoskins Co., 8% pfd.	104	107
China Grove Cotton Mills	99	103
Clara Mfg. Co.	94	101
Climax Spinning Co.	150	156
Clover Mills	89	95
Crescent Spinning Co.	98	101
Dixon Mills	100	106
Durham Hosiery, 7% pfd.	42	46
Durham Hosiery, "B"	5	8
Eagle Yarn Mills	82	....
Eastern Mfg. Co.	....	86
Erwin Cotton Mills Co.	144	....
Erwin Cotton Mills Co., 6% pfd.	102	....
Gibson Mfg. Co.	123	....
Globe Yarn Mills (N. C.)	60	66
Gray Mfg. Co.	115	121
Hanes, P. H. Knitting Co.	8	9
Hanes, P. H., Ktg. Co., 7% pfd.	104	....
Henrietta 7% pfd.	100	102
Imperial Yarn Mills	135	145
Jennings Cotton Mills	260	276
Linford Mills	93	96
Locke Cotton Mills Co.	165	....
Lola Mfg. Co.	80	90
Majestic Mfg. Co.	165	....
Mansfield Mills	160	176
Mooresville Cotton Mills	100	106
Myers Mill	65	71
National Yarn Mill	125	136
Parkdale Mills	100	110
Perfection Spinning Co.	92	93
Priscilla Spinning Co.	48	51
Ranlo Mfg. Co.	110	119
Rex Spinning Co.	....	46
Rex Spinning Co., 7% pfd.	....	58
Rhyne-Houser Mfg. Co.	85	90
Roanoke Mills, 7½% 1st pfd.	102½	...
Roanoke Mills, 8% pfd.	97	100
Rosemary, 7½% pfd.	96	98
Rowan Cotton Mills Co.	96	101
Seminole Cotton Mills Co.	95	100
Sterling Spinning Co.	107	112
Stowe Spinning co.	88	91
Victory Yarn Mills Co.	74	81
Victory, 8% pfd.	99	101
Winget Yarn Mills Co.	69	76
Wiscassett Mills Co.	180	....

Southern Mill Stocks

(Quotations furnished by A. M. Law & Co., Inc., Spartanburg, S. C.)

	April 29, 1924 Bid	Asked
Abbeville Cotton Mills	110	115
American Spinning Co.	...	275
Anderson Cotton Mills	103	106
Aragon Mills	150	165
Arcade Cotton Mills	85	93
Arcadia Mills	275	280
Arkwright Mills	100	110
Augusta Factory, Ga.	64	...
Avondale Mills, Ala.	760	900
Beaumont Mfg. Co.	415	...
Belton Cotton Mills	60	65
Belton Cotton Mills, pfd.	90	93
Bibb Mfg. Co.	175	180
Brandon Mills, pfd.	97	...
Brogon Mills	109	111
Calhoun Mills	125	135
Chesnee Mills	135	145
Chiquola Mfg. Co.	255	265
Chiquola Mfg. Co., pfd.	93	95
Clifton Mfg. Co.	137	140
Clinton Cotton Mills	250	...
Columbus Mfg. Co., Ga.	129	140
Cowpens Mills	82	85
D. E. Converse Co.	120	125
Dallas Mfg. Co., Ala.	150	165
Darlington Mfg. Co.	91	94
Drayton Mills	95	...
Dunean Mills	117	120
Dunean Mills, pfd.	98	100
Eagle & Phenix Mills, Ga.	175	...
Enterprise Mfg. Co., Ga.	95	...
Gaffney Mfg. Co.	94	98
Gainsville Cotton Mills, Ga.	173	180
Glenwood Mills	141	145
Gluck Mills	125	128
Graniteville Mfg. Co.	175	...
Greenwood Cotton Mills	400	...
Grendel Mills	250	...
Grendel Mills, pfd. (par, 50)	46	48
Hamrick Mills	145	155
Hartsville Cotton Mills	185	...
Inman Mills	150	...
Inman Mills, pfd.	101	...
Jackson Mills	225	...
Judson Mills	170	174
Judson Mills, pfd.	101	103
King, John P. Mfg. Co., Ga.	165	175
Laurens Cotton Mills	150	...
Limestone Cotton Mills	150	155
Marion Mfg. Co., N. C.	125	136
Marlboro Mills	64	66
Mills Mill	285	300
Mollohon Mfg. Co.	120	125
Monarch Mills	138	141
Musgrove Cotton Mills	82	86
Newberry Cotton Mills	135	138
Ninety-Six Mills	150	...
Norris Cotton Mills	...	93
Oakland Cotton Mills	120	125
Orr Cotton Mills	106	108
Orr Cotton Mills, pfd.	97	99
Pacolet Mfg. Co.	210	215
Pacolet Mfg. Co., pfd.	103	105
Panola Cotton Mills, Class A, pfd. (Par, $95)	93	95
Pelham Mills	...	22
Pickens Cotton Mills	141	...
Piedmont Mfg. Co.	145	148
Poe, F. W. Mfg. Co.	135	137
Poinsett Mills	106	108
Riverside Mills (Par. $12.50)	8	9
Riverside and Dan River	221	225
Saxon Mills	97	100
Sibley Mfg. Co., Ga.	75	80
Spartan Mills	158	161
Toxaway Mills (Par, $25)	35	36
Union-Buffalo Mills	75	77
Union-Buffalo Mills, 1st pfd.	95	96½
Union-Buffalo Mills, 2d pfd.	57	58½
Victor-Monaghan Company	106½	107½
Victor-Monaghan Co., pfd.	114	116
Ware Shoals Mfg. Co.	175	195
Watts Mills	90	...
Watts Mills, 1st pfd.	98	101
Watts Mills, 2d pfd.	150	160
Whitney Mfg. Co.	108	111
Williamston Mills	195	...
Woodruff Cotton Mills	200	...
Woodside Cotton Mills Co.	120	123
Woodside Cotton Mills Co., pfd.	90	91

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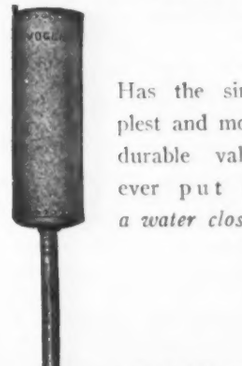
Over 300,000 in use in all climates.

Requires no pit. Simplest water closet made.

No. 1.

VOGEL No. 5 FACTORY CLOSET



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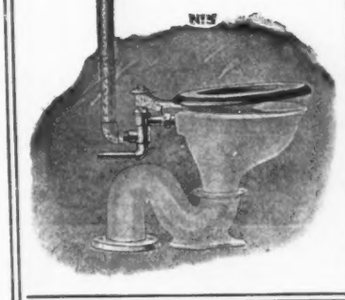

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COTTON YARNS

All Numbers and
Descriptions for

Knitting and Weaving

Boston Cleveland New York
Utica Reading

An Achievement in Cotton Yarns

Product of

Arlington Cotton Mills

This plant spins fine combed yarns in sizes ranging from 50s to 70s, single and ply, suitable for knitting, weaving, lace and converting purposes. The choice long staple white cotton used produces a yarn noted for its strength, evenness and workable qualities.

Quotations and samples promptly submitted

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FLINT MANUFACTURING CO.
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Johnston Standards~

GOOD — Cotton, the first essential tor quality yarn, selected by proven methods and passed by an expert grader.

BETTER — Machinery, the latest improved and thoroughly modern maintained at a high standard of efficiency.

BEST — Workmanship, the indispensable human equation without which material and machinery, however good, could not properly function.

SUPREME — Finished yarns ot quality suited to the highest class of fabrics and backed by the service of a responsible and established organization.

JOHNSTON MILLS COMPANY
"Direct to Consumer"
Knitting and Weaving ~ Mercerized and Natural
COTTON YARNS
Sole Selling Agents ~ SPINNERS PROCESSING Co? SPINDALE, N.C.
PHILADELPHIA NEW YORK CHARLOTTE CHATTANOOGA BOSTON

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HIGH GRADE

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MILLS: BURLINGTON, N.C.

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Range: 14/1-24/1

The uniform strength of King Yarns discourages breakage — whence *seconds*. These smooth-running yarns are free from troublesome knots and lumps.

Compare them with the yarns you now use. Write for samples.

Sold Direct

PAIGE, SCHOOLFIELD & CO., INC.

Carded and Combed Cotton Yarns

SOLE REPRESENTATIVES

Mandeville Mills, Carrollton, Ga.
Audrey Spinning Mills, Inc., Weldon, N. C.
White Hall Yarn Mills, White Hall, Ga.
Chatham Mfg. Co., (Cotton Dept.) Elkin, N. C.

Singles and Plies—Right and Reverse Twists—
Cable Cords—Ratinés and Colors

1 Madison Ave., New York City
PHILADELPHIA PROVIDENCE

COTTON YARN MARKETS

A Few Yarn Inquiries But Sales Infrequent

Curtailment Showing Its Effect—Buyers Ask Postponement of Shipment

NEW YORK.—The only ray of encouragement that is to be noted in the yarn market this week is that here and there a few inquiries have been received and insofar as this is concerned the situation differs from that of the last three or four weeks, when an utter absence of interest made for absolute stagnation. These inquiries are not likely to issue in actual transactions unless something extraordinary happens to bring the buyer and seller closer together.

In this connection a dealer made the statement this week that on ten inquiries if he sold at the figure the buyer had in mind he would lose money on every one. Considering the apathy of buyers and the weakness of the raw cotton market, the position of the spinner is decidedly firm. There is usually a difference of two or three cents a pound between the asking price of the spinner and the figure which it seems possible the buyer might pay.

There is no market today and therefore the selling level is a misnomer. As one dealer remarked, "We sell the same yarn at a difference of 3¢ a pound on different transactions, sometimes within the same day."

Curtailment Growing

Despite all the reports on both sides of the question, it can be stated with considerable basis of authority that curtailment is growing rapidly. Its effect has been noticed in the selling markets. Buyers when they do want yarns want them in a hurry and instances of inability to secure exactly what is wanted have been more or less numerous. This is also an indication that stocks in spinners' hands are not as burdensome as many would have their hearers believe.

While in instances there have been accumulations that may take some time to work off, yet generally speaking the spinner has been able to dispose of his product without any radical piling up of stocks. It is wondered sometimes how this is accomplished, but the answer usually is that the dealer has come to the rescue and has taken a sufficient amount to prevent accumulations.

An instance of this kind happened during the Knit Goods Show in Philadelphia. The cotton market one day advanced 300 or 400 points and spinners immediately began to talk of business they had received. It is true that orders were placed with the mills but they were almost exclusively by dealers who feared a further advance

(*Continued on page* 175)

Cotton Yarn Quotations

(*Corrected at close of business, April* 30)

Carded—(Average Quality)

Single Skeins and Tubes—Warp Twist

4s to 8s	—	—42	20s	46	—47
10s	—	—43	24s	48	—49
12s	43	—44	26s	49	—50
14s	44	—45	30s	51	—52
16s	45	—46	40s	60	—61

Two-Ply Skeins and Tubes

8s-2	—	—42	24s-2	48	—49
10s-2	—	—43	26s-2	50	—51
12s-2	43	—44	30s-2	51½	—52
14s-2	44	—45	36s-2	58	—59
16s-2	45	—46	40s-2	59	—60
20s-2	46	—47	50s-2	—	—71

Single Warps

10s	43	—44	24s	—	—49
12s	43½	—44½	26s	—	—50
14s	—	—45	30s	—	—52
16s	45	—46	40s	60	—61
20s	46	—47			

Two-Ply Warps

8s-2	42	—43	24s-2	—	—49
10s-2	43	—44	26s-2	—	—50
12s-2	44	—45	30s-2	—	—52
14s-2	—	—45	40s-2 ordinary	—	—60
16s-2	45	—46	40s-2 high breakage	64	—65
20s-2	—	—47	50s-2	72	—74

8s-3 and 4-ply skeins and tubes; tinged, 38c–39c.; white, 40–41c.

Hosiery Cones (Frame Spun)

8s	—	—41½	22s	45	—45½
10s	—	—42	22s Jaeger and silver	46	—47
12s	—	—42½	24s	—	—46
14s	—	—43	26s	—	—47
16s	—	—43½	30s tying in	—	—48
18s	—	—44	30s extra quality	50	—52
20s	—	—44½	40s	60	—65

Combed Peeler—(Average Quality)

Warps, Skeins and Cones

20s-2	60	—62	50s-2	75	—77
30s-2	65	—67	60s-2	80	—82
36s-2	68	—70	70s-2	90	—95
40s-2	70	—72	80s-2	1 02	—1 05

Singles

12s	51	—52	30s	62	—63
14s	52	—53	36s	67	—69
16s	53	—54	40s	70	—72
18s	54	—55	50s	75	—77
20s	55	—56	60s	80	—82
24s	58	—59	70s	90	—95
28s	59	—60	80s	1 02	—1 05

Mercerized Cones (Combed, Ungassed)

26s-2	74	—76	50s-2	87	—95
30s-2	76	—78	60s-2	97	—1 03
36s-2	79	—83	70s-2	1 10	—1 16
40s-2	82	—86	80s-2	1 22	—1 30
45s-2	85	—90			

Peeler—(Super Quality)

Single Cones

	Carded		Combed			Carded		Combed	
10s	45	—46	52	—54	26s	52	—54	62	—64
14s	46	—47	54	—56	30s	54	—56	64	—66
16s	47	—48	55	—57	36s	58	—60	70	—72
18s	48	—49	56	—58	40s	62	—65	72	—76
20s	49	—50	58	—60	50s	—	—	80	—85
24s	51	—52	60	—62	60s	—	—	90	—95

Combed Cones, Warps and Tubes

20s-2	64	—66	40s-2	75	—80
24s-2	66	—68	50s-2	80	—85
28s-2	68	—70	60s-2	90	—1 00
30s-2	70	—72	70s-2	1 00	—1 15
36s-2	72	—75	80s-2	1 10	—1 25

Combed Reverse Twist Thread Yarns—Skeins, Tubes or Cones

2-, 3- and 4-ply

	Peeler		Sakelarides Average		Sakelarides Best	
24s	78	—82	87	—90	1 00	—1 05
30s	80	—82	90	—93	1 03	—1 08
36s	82	—86	92	—95	1 05	—1 10
40s	87	—92	97	—1 00	1 10	—1 15
45s	93	—97	1 00	—1 05	1 15	—1 20
50s	98	—1 03	1 05	—1 10	1 20	—1 25
60s	1 08	—1 12	1 15	—1 20	1 30	—1 40

New Business Very Limited

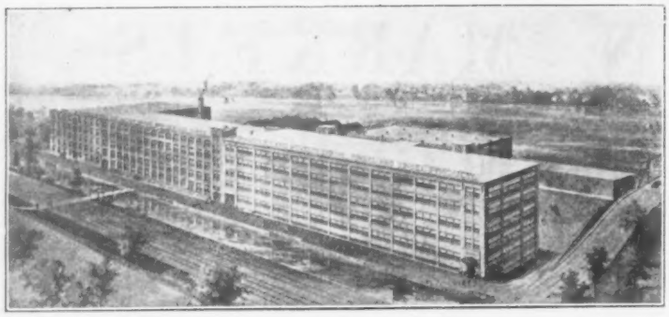
Hand to Mouth Buying Found Profitable—Spinners' Prices Unchanged—Weavers Quiet

PHILADELPHIA.—The most noticeable characteristic of the market is the small amount of new business placed with local dealers. Carded weaving qualities have been in smaller spot demand than in recent weeks, while no future orders have been reported. Knitting yarns have sold in small lots for immediate delivery, with the total volume considerably below previous week's business. Prices are slightly lower than last week for spot business, although spinners' asking prices remain unchanged. Whether they would accept less is problematical, as local dealers have had few inquiries on which they have asked spinners' prices. Several say they have sold so little yarn they feel prices are practically nominal. Combed prices are unchanged, quotations being shaded where business is available. Two sales amounting to 180,000 lbs. of combed mercerizing twist yarns are reported at low figures from spinners.

A question frequently asked is, "Why are yarn sales so small?" It is explained by yarn factors because manufacturers of practically all kinds of goods made from cotton have failed to book sufficient business to warrant new yarn orders being placed. In instances where mills have goods orders they refuse to order ahead, as prices during the past several weeks have displayed lower tendencies, making it possible for buyers to secure a small amount of yarn each week at lower figures than they had paid previously, thus making it unprofitable for them to have placed larger orders at higher prices. In other words their hand-to-mouth policy has proved to have been the correct one up to this time from the buyer's standpoint. Other buyers are following a cautious method of buying, after they read reports of large acreage of cotton planted and see new crop months quoted six cents cheaper than old crop months, leading them to feel yarn commitments should be postponed so far as possible to secure advantage of future lower prices.

Weaving Yarns Restricted

Weaving yarns have sold in limited quantities at 46 to 47c for 20s-2 warps; one sale being reported at 45c which is two cents lower than a week ago. Spinners continue to quote this count at 48 to 49c and 30s-2 warps at 53 to 54c, sales of this count being reported at 52c for spot delivery. Quotations of single warps are firmer than two-ply as stocks in dealers'



The J. R. Montgomery Co.

Windsor Locks, Conn.

Manufacturers of

Cotton Warps, Beams, Jack Spools, Tubes, Cones

in fancy twist, colors and printed.

Mercerized Yarns

in colors or plain natural, put up in Warps, on Jack Spools, Tubes, Cones and Skeins.

Crochet and Mending Cotton

on balls in boxes.

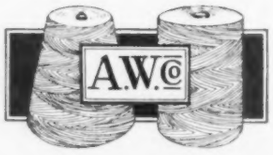
Novelty Yarns

Knotted, Loop or Spiral in Cotton, Wool, Worsted, Mohair and Silk.

Tinsel and Tinsel Products

in Thread, Cords and in Novel effects.

A large additional modern plant, a new dye house with latest and most modern machinery, equipped for job dyeing, bleaching and mercerizing.



COTTON YARNS

All Numbers—For All Purposes

Correspondence with mills desiring direct representation solicited

ARTHUR WHITTAM CO.

INCORPORATED

52 Chauncy St., BOSTON, Mass.

Carded or Combed

YARNS

of Every Description

Plain, Gassed, Mercerized
Natural Bleached or Dyed

438 Broadway, New York

Cotton Yarn Markets—Continued

hands are lower, while customers usually require warps of special description to be made according to specifications. Sales to insulating mills are small. Carpet manufacturers are waiting for the opening of new lines and prices before they are expected to be in the market for yarn.

Small Lots for Knitters

Knitting yarns are being purchased in small lots for immediate delivery, 16s, 18s and 20s cones being in best demand. Ordinary quality is quoted at 42c basis 10s. This figure is bettered slightly in some instances, although better grades of carded yarn have sold at 46c for 20s, 48c for 24s, 50c for 30s and 53c for 30s double carded. Prices of finer counts are firmer than coarser numbers, the whole list remaining relatively firmer than weaving qualities. All two-ply yarns are reported dull, with interest displayed, in some instances, in fancy and novelty yarns for special lines, using mostly single yarn.

One of the most important factors in this market believes the next 60 days will witness a decided improvement in all lines of cotton goods, with higher prices resulting from increased demand, with insufficient stocks of raw material to draw upon. While it is admitted conditions are not such as to justify optimism at this moment, he feels that conditions will change within this time unless unforeseen political or economic factors affect the situation and undermine business confidence. This assumption is based primarily on low stocks of cotton to carry over, diminished stocks of finished goods and the fact yarns and goods are selling below actual cost which cannot long prevail.

Combed Yarns Dull

Combed qualities are dull, a majority of dealers holding to former prices. Sales, however, are reported at a lower level, one factor selling 150,000 lbs. 58s-2 mercerizing twist at 75c for delivery during the next two months, another reporting sale of 30,000 lbs. 30s-2 warps at 62c for prompt shipment. These prices are lower than the average dealer will consider, quotations averaging 65 to 67c for 30s and 80c for 60s. A small lot of 36 single was sold at 70c and spot lots of 16s, 18s and 20s sold at 53, 54 and 55c. Mercerized yarns are quiet, prices being slightly softer than reported last week.

A Nominal Market

Prices and Trade Unsettled and Indefinite

BOSTON.—There has been no development of a positive character in the cotton yarn market this week, the price fluctuations of the raw cotton market practically cancelling each other, and the curtailment of demand being apparently sufficient to cancel the effect of increased curtailment of production. While production of southern yarn mills is believed by some authorities to be not in excess of 50% of normal day-time capacity at present, it is an unfortunate fact that comparatively few yarn consumers are operating at better than one-third of normal capacity. The latter is about the operating capacity of the majority of northern spinners, thus indicating that yarn production is still in excess of current consumption.

Nevertheless it is a fact that there is increasing evidence of determined resistance to further efforts to depress prices, this now being quite as marked among southern as among northern spinners. Instances where buyers have been forced to pay higher than nominal market prices for prompt deliveries of yarns not to be found in stock are becoming almost as numerous as instances of stock yarns being sold below nominal market prices. This may account for reports of sales of 20s-2 warps this week as low as 46c. and as high as 50c., the former from stock and the latter for forward delivery. This is a wider range of prices than is now current in most counts and varieties of yarns, with the possible exception of combed mercerizing warps which are particularly unsettled. The latter are nominally quoted on the basis of 80 to 82c. for 60s-2, with eastern spinners asking around 90c. and with southern yarns from stock said to be available at 75c. and below. The range of prices on carded hosiery yarns appears to be narrower than that on weaving yarns, this being probably explained by the fact that production of the former has been more radically curtailed; a basis of 41 to 43c. for 10s frame-spun cones of average quality appears to cover minimum and maximum prices.

Cautious Yarn Buying

Users Operate Close to Needs in Middle West

CHICAGO.—The underwear manufacturers have come into the market for the yarns required in May and June. They are buying as their new orders come in, and do not intend to place orders far into the future.

This same policy is being pursued by most of the other manufacturers, although occasionally some of them are buying into July and August. The market prices on yarns are about the same as last week; 20s-2 white about 49 to 50c and 30s-2 about 54c; 16s-1 carded cones from 44 to 45c, and 22s-1 from 47 to 48c.

N. Y. Cotton Yarn Market

(*Continued from page 173*)

and elevation of spinners' levels. Inasmuch as they had no stock on hand, they placed orders for fair quantities in order to have the wherewithal to offer their customers. The market broke the next day, however, and this

GROVES MILLS, Inc.
GASTONIA, N. C.
SCENIC BRAND
High Grade
Combed Peeler Yarns
Representatives:
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NORMAN C. NAGLE Co., Inc.
80 Boylston Street Boston, Mass.

VAN COURT CARWITHEN
300 Chestnut Street, Philadelphia, Pa.
Sole Representative
SWIFT SPINNING MILLS
BRADLEY MFG. CO.
MUSCOGEE MFG. CO.
Whites, Stock, Dyed and Heathers
Cotton Yarns of Quality
All of COLUMBUS, GA.
FROM MILL DIRECT TO CONSUMER

LOWELL YARN COMPANY
Main Office: 308 Chestnut St., Phila. Providence, R. I.; 17 Exchange St.
N. Y. Office: Room 614, 260 W. B'way Southern Office: Lowell, N. C.
Chicago Office: Room 1114, Old Colony Life Insurance Bldg.
Spinners to Consumers
Carded and Combed Peeler single and ply Cones, Skeins, Warps, Tubes
For Knitting and Weaving Trade

L. P. Muller & Co.
206 Chestnut Street PHILADELPHIA
51 Leonard Street NEW YORK
COTTON YARNS
Selling Agents
Linn-Corriher Mills—Hartsell Mills Company
28s to 32s Cones Full Double Carded
10s to 20s Single and Ply

FORREST BROTHERS
Forrest Bldg., 119 S. Fourth St., Phila., Pa.
Superior Quality Knitting Yarns
Sole Representatives
Bladenboro Cotton Mills—Vass Cotton Mills
8s to 30s Extra Carded

Quality First
COTTON
CLARENCE L. MEYERS
YARNS
2d and Somerset Streets, PHILADELPHIA
SILK

COTTON PRODUCTS COMPANY

Bankers Trust Building Philadelphia, Pa.

High Grade Warps

for MERCERIZING

Selling Agents for

The ELMORE COMPANY, Spindale, N. C.

SINGLE MERCERIZED YARNS

PAULSON, LINKROUM & Co.

INC.

COTTON YARNS

WEAVING AND KNITTING

Sole Agents
STANDARD COTTON MILLS
CEDARTOWN, GA.

Highest Quality Mule Spun Yarns
6s to 24s

52 LEONARD ST., NEW YORK

PHILADELPHIA CHICAGO
PROVIDENCE CHARLOTTE, N. C.

T. J. PORTER & SONS

FINE SINGLE YARNS

60s to 200s

COMBED SAKELARIDES and SEA ISLAND

In Skeins or on Cops,
Tubes or Cones

Immediate Deliveries

Large Stocks Carried

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PHILADELPHIA NEW YORK

STEVENS
YARN CO., Inc.
86-88 Worth St. N. Y. City
COTTON YARNS
Selling Agents for
LILY MILL & POWER CO. Combed Rov. Thread 26s to 50s
MASON COTTON MILLS CO. Combed & Carded 20s to 40s
RHYNE-HOUSER MFG. CO. Combed 50s to 60s
STEELE COTTON MILL CO. Carded 26s to 30s
STAR THREAD MILLS Carded 24s
PRINCETON MFG. CO. Carded 20s
GEORGIA MFG. CO. Carded 24s to 30s
ROYALL COTTON MILLS Carded 20s
BOSTON PHILADELPHIA
PROVIDENCE CHARLOTTE, N. C

The Macrodi
FIBRE HEAD WARP SPOOL
After 14 years of the hardest mill use has demonstrated that it is
Durable—Economical
Write for particulars of the added traverse with corresponding increase in yardage—an important feature of this spool.
Prompt Deliveries
MACRODI FIBRE COMPANY
Woonsocket, Rhode Island

New Jersey Textile Wire Stitcher
Highest Grade
Machine for rapid and Economical Method of Attaching Rider tickets to Hosiery or other Garments.
Uses pointed staples, cannot tear the finest fabric
Send for Catalogue
J. L. Shoemaker & Co., 15 S. Sixth Street PHILADELPHIA

V. E. MERTZ 151 Fifth Ave. New York
CREPE
Twist Setting Machines
With Vacuum
Standard sizes for cotton, wool and silk

Parks-Cramer Company
Engineers & Contractors
Industrial Piping and Air Conditioning
Profit by
"HIGH DUTY CLIMATE"
Fitchburg Boston Charlotte

Cotton Yarn Market—Ctd.

killed off all further operations.

What was the result? The dealers still have the yarn on hand and buyers have not been interested in any purchases the dealer has made. It makes little difference to the yarn consumer whether the market goes up or down, as long as he is unable to sell his product. This has been the case in so many instances that it is an explanation for the general hand-to-mouth character of operations today.

Cotton Possibilities

As many arguments may be adduced for prophesying that raw material will decline radically as for the belief that there will be an equally radical appreciation of cotton prices. The imminence of improvement in European affairs, the large exports of cotton and the comparative scarcity of spot cotton, all combine to present causes for material increase. On the other hand, the general stagnation in the textile industry and decreased consumption as a result, are enough to furnish the bears with plenty of ammunition.

As long as manufacturers declare they can make more profit today on selling cotton they own than by spinning it and marketing the yarn product, it is not likely that domestic consumption figures will show a marked increase.

Other Discouraging Elements

Dealers declare that in instances they are feeling competition by the yarn consumer who is trying to get rid of the yarn he has on hand rather than buy any more. Naturally this yarn was bought some time ago and can be quoted below what might be termed as the market today. It is true that instances of this kind are not common, for the majority have not bought sufficient yarn to risk its entire absorption and the possibility of paying more later on, but at the same time there are enough who are trying to realize on their yarn product to demoralize the situation even more than it might be under ordinary circumstances.

Another element which is disquieting to a degree is the request in certain cases to delay shipments of yarn under contract. These requests are not as great as they would be under normal conditions for the average buyer has not purchased enough to make it a matter of consideration whether the yarn comes forward or not, but there are enough instances to add another bearish tendency to the market.

Knitting Yarn Inquiries

Possibly knitters are making more inquiry for yarns today than any other section of the trade, but their ideas are decidedly below anything that can be obtained from the mill. The spinner is not likely to consider 45c. for 22s when only within two or three weeks he has had several hundred thousand pounds offered on this number at 46¢. Whether this business involved covering of short sales or not makes little difference as

CANNON YARNS

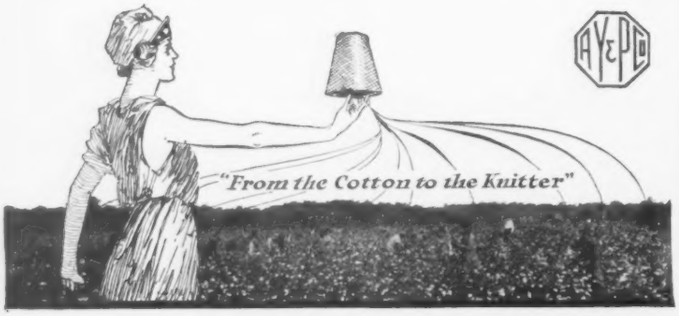
Cotton Yarns of Quality

Quality:—We invite inquiries from the Knitter who puts *Quality* above *Price*—Who is proud of his product and guards it jealously. *Cannon Yarns* are dependable—The same high quality is maintained year after year.

The yarn is the product of our own mills, and back of every pound is the guarantee of

THE CANNON MILLS
INC.
From Spinner Direct to Manufacturer
PHILADELPHIA
New York Providence Boston
Reading, Pa. Chicago Amsterdam
Chattanooga

THE STANDARD OF VALUE & QUALITY



AMERICAN YARN & PROCESSING CO.

General Office
Mount Holly, N. C.

Spinners and Mercerizers

High Grade Combed and Carded Yarns

Our Mercerized Yarns are the Product of Our Own Mills

Representatives:

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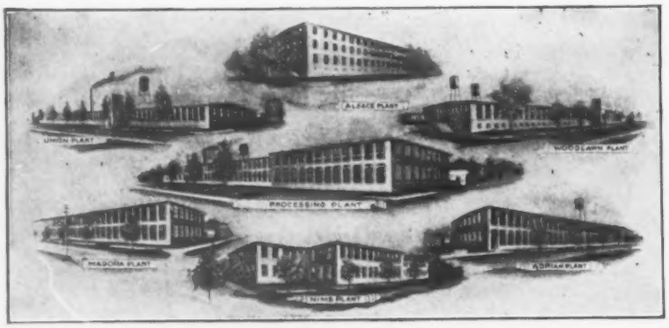
346 Broadway, New York City

FORREST-BROTHERS
119 S. 4th St., Forrest Bldg., Philadelphia



SHAWMUT MILLS
COMBED COTTON YARNS
FALL RIVER, MASS.

Highest Quality - Single and Twisted
THREAD YARNS
Sakellarides — Egyptian — American
High Grade Weaving and Knitting Yarns
8's — 40's
Sell Direct

QUALITY — SERVICE — SATISFACTION

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Textile Broker

Cotton Yarn
Raw Silk
Thrown Silk
Foreign Cotton
Tapes
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Providence, R. I.

Telephone Union 5029 P. O. Box 467

Cotton Yarn Markets—Continued

long as the spinner accepted the offers.

Therefore today 45¢ seems a low figure but it is difficult to persuade a knitter to pay even this amount. As a matter of fact there are those even among the selling fraternity who believe the market is headed for 40c. basis of 10s. Buyers are undoubtedly trying to secure this figure but it is a question, if they are able to obtain it eventually, whether they will buy when the market has reached this level.

A sale of 25,000 lbs. of yarn to a carpet mill, reports of isolated export business and of inquiries for fair amounts, without purchases, from the wire trade, constitute practically all of the noteworthy incidents of a generally dull and unprofitable week.

Cotton Movement

WASHINGTON, D. C.—The cotton movement from August 1, 1923, to April 25, 1924, is reported by the Department of Agriculture, as follows:

	1924 Bales	1923 Bales
Port receipts	6,159,854	5,365,954
Port stocks	527,600	469,550
Interior receipts	6,965,759	7,003,469
Interior stocks	486,199	604,346
Into sight	10,500,764	10,273,501
Northern spinners' takings	1,605,603	2,076,723
Southern spinners' takings	3,350,276	3,831,039
World's visible supply of American cotton	1,941,799	1,877,890

Spun Silk Co. Curtails

NEW BEDFORD, MASS., Apr. 30.—The National Spun Silk Corp. will close down its entire plant Friday evening for ten days, opening up for business one week from Tuesday. This is the first serious curtailment by the plant, which last week went on a four day schedule. The management gives "business conditions" as the reason for the shutdown.

Bradford Market

(Continued from page 153)

port merchants who have been large buyers of crossbred yarns recently are now held up because they can not get remittances from Germany owning to German Government restrictions on purchase of sterling. On the other hand the appreciation of the franc has made French yarns dearer than Bradford yarns and rather better business is being done in Botanies both for home and export. Taking industry as whole machinery activity continues to increase and percentage of unemployment at end of March was 5% compared with 6½% previous month and 11% last November. It is estimated that machinery activity was fully 15% greater in March than it was last autumn.

Sixty-fours are selling on basis of 70 to 71d.; 56s still quoted 49d. and 46s carded 28½d. but concession might be obtained. Two-ply 48s Botany yarn is 7s. 3d.

The index number on weekly wool chart is 201, compared with 200 in March and 165 a year ago.

At East India wool sales in Liverpool best yellows were firm, best whites neglected, medium wools par to 5% lower and grays fully 5% lower than March.

Wastes Inactive

Supplies Dwindle and Consumer Buying Decreases

BOSTON.—The cotton waste market remains unimproved. No sizable business is being done either for domestic trade or for export. The rise in cotton has stiffened waste prices but had very little influence in bringing in consumer interest. There is no large assortment of waste available and the outlook for larger supplies continues most discouraging. There is a little spotty buying here and there at prices determined by the purchaser. White rovings are quoted at 28c.; there is a moderate inquiry also for Egyptian rovings. Combers and strips are inactive and all the lower grade spinnables are moving in very moderate volume.

Supplies continue to dwindle. Curtailment in cotton manufacturing has not yet reached its bottom, although there are signs that in the north there is a general tendency toward an improvement; but the whole situation is very much disturbed particularly as it may be necessary for employers to bring about a reduction in wages, something that has already occurred in a few isolated places. Small supplies and limited waste stocks held will in the long run prove an effective influence in sustaining prices in face of any decline in cotton or in lifting them quite considerably should there be a larger business encountered in the industries which utilize waste materials other than for spinning purposes.

Consumer demand at the present time is so very limited that if there were a large production of cotton waste, prices for the various classifications would be disastrously affected. Trading business is about as flat as it can be. The only people able to do anything like a satisfactory business at this time are the larger houses taking wastes direct from the mills and passing the same over to the direct consumer. Business is remarkably spotty, even the larger houses selling 2, 5 and 10 bale lots instead of 100 bales or carloads.

Current Quotations

Peeler comber	26 —27c.
Peeler strips	24½—25½c.
Sak, comber	25 —25½c.
Sak, strips	24 —24½c.
Choice willowed fly	13½—14c.
Choice willowed picker	10½—11c.
Linters (mill run)	6½— 7c.
Spooler (single)	17 —17½c.
Fine white cop	21 —21½c.

Kerrville Mohair Sales

KERRVILLE, TEX.—The Shreiner Wool and Mohair Commission Company has sold its entire accumulation of mohair from the spring clip, approximately 1,000,000 lbs.; 800,000 lbs. going to Draper & Co., of Boston, and 20,000 lbs to John & James Dobson, of Philadelphia. The average price was a fraction over 71c a pound, covering kid or yearling clips.

J. B. JAMIESON COMPANY
COTTON YARNS
77 Summer St.
Boston, Mass.

TILLINGHAST-STILES CO.
JESSE P. EDDY, Treas.
Cotton and Worsted Yarns
PROVIDENCE, R. I.
Room 922, Webster Bldg. 327 So. La Salle St., Chicago

ORSWELL MILLS Fitchburg, Mass.
COTTON YARNS
Carded and Combed—Gassed and Ungassed

GATE CITY COTTON MILLS
Manufacturers of Superior Quality
WHITE HOSIERY YARN on CONES
We sell direct to Knitters and guarantee satisfaction
337 Trust Company of Georgia Building, ATLANTA, GA.

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Karded and Combed
Cotton Yarns
All Descriptions
88 Leonard Street New York

COTTON HAROLD W. O'LEARY COMPANY YARNS
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THE JOHN F. TRAINOR COMPANY
Cotton Yarns
320 Broadway New York

JOHN F. STREET & CO.
COTTON YARNS
201 Industrial Trust Bldg. PROVIDENCE, R. I.
CHICAGO PHILADELPHIA NEW YORK

THE J. R. MONTGOMERY CO. WINDSOR LOCKS, CONN.
Manufacturers of
MERCERIZED COTTON YARNS Give the high Silk-like lustre
In Knit Goods and Woven Fabrics
NOVELTY YARNS Poucle, Bourette and Spirals in Cotton Wool, Worsted, Mohair and Silk
COTTON WARPS On Beams, Jacks, Spools and Tubes In Fancy Twist, Colors and Printed

EWING-THOMAS CONVERTING CO.
Specialists in Mercerized Yarns CHESTER, PA.
Warp Mercerizing for the Trade
Gassed—Natural—Bleached—Colors
DOUBLE MERCERIZED SPECIAL PROCESS

GLOBE DYE WORKS CO.

Philadelphia, Pa.

Successors to
R. GREENWOOD & BAULT

MERCERIZERS

DYERS—BLEACHERS
OF
Cotton Warps and Skein Yarn

Indanthrene Colors a Specialty

MERCERIZED YARNS

CONES TUBES WARPS SKEINS

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Wool
Worsted
Merino
Silk Mixtures
Heather Mixtures

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DUNN-WETZELL CO., Inc.

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COTTON YARNS

For Weaving and Knitting. Mixtures and Stock Dyed Yarns.

DIRECT REPRESENTATIVES FOR

BUFFALO MILLS, INC.
Gastonia, N. C.
18/1 to 30/1 Double Carded
Knitting and Weaving.

SOUTHERN MERCERIZING CO.
TRYON, N. C.
Mercerized 40/1 to 100/1
Also Two Ply 100/s to 140/s.

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AN INCORPORATION OF SOUTHERN SPINNERS
FROM PRODUCER DIRECT TO CONSUMER

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Eastern Office, 336 Grosvenor Bldg., Providence, R. I.

MILLS DESIRING DIRECT REPRESENTATION AND HAVE THEIR PRODUCT SOLD UNDER THEIR OWN MILL NAME WILL PLEASE COMMUNICATE

McCONNEL & CO., Ltd.

Manchester, Eng.

Spinners and doublers of fine cotton yarns especially adapted for the making of laces, voile, fine hosiery dress goods and insulating wires.

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Cotton Yarns

Philadelphia Boston

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YARNS

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COTTON MARKETS

Cotton Feels Strength of Spot Situation

But Sentiment Bearish on New Crop Prospects and Dull Goods Markets

The two questions uppermost in the minds of cotton traders during the week have been, first, as to whether the trade short interest for remaining old crop deliveries can be covered without causing a further advance in view of the statistical position, and second, whether in view of more favorable reports concerning the new crop start and the situation in cotton goods, new crop months are not being held above their merits by the strength of the old crop positions. The answer to both these questions may depend upon the further progress of the coming crop, and in the meantime trading has been confined largely to the evening up of old commitments. This took the form of rather urgent covering by old crop shorts incident to the issuance and prompt stopping of May notices, but after advancing to 30.70c. on the first notice day, May eased off under realizing and lost part of its premium following the issuance of additional notices on Tuesday and Wednesday.

At the same time and in spite of the reactions, the old crop premiums were well enough maintained to suggest that there was still a considerable interest outstanding in both May and July, while there was nothing to indicate any easing of the southern spot situation.

Further shipments have been reported out of the New York stock which is now down to about 75,000 bales with every prospect that it will be in the neighborhood of 50,000 by the middle of May. So far as can be learned May premiums have not been sufficient to attract cotton here from the South for delivery and while the easing of the local technical position has been followed by setbacks, the evening up of old crop months so far has rather tended to emphasize the strength of the statistical position. Just how effective this may be in determining the course of the end-season market, depends largely upon the extent of remaining old crop trade commitments and of export demand. The latter has been one of the features of recent advances, suggesting that spinners abroad are trying to increase their stocks sufficiently to carry them through until new crop cotton becomes available.

Meanwhile almost all reports now reaching here from the South tend to create a favorable opinion of the new crop start. Planting has been practically completed in the Southern part of the belt, more than half completed in the middle of the belt, and about 20% has been planted in more northern sections, according to the weekly review of one of the prominent spot firms. This view of the situation seems to be about in line with reports from other sources, and the evidence continues to point to an increase of something like 4 to 6% in acreage as compared with the acreage picked last season. This would mean an area of something like 39,000,000 acres on which an increased supply of fertilizer would be used. Scarcity of labor is still complained of and is a factor that would have to be reckoned with should there be much wet weather this May.

The following table shows Wednesday's closing quotations in the leading spot markets of the country, with the usual comparisons:

Market	April 23	April 30	Ch'ge	Last year	Sales
Galveston..	30.00	30.00	....	26.60	11,139
N. Orleans	29.63	29.75	+12	27.00	2,934
Mobile.....	28.75	29.75	+100	27.00	.....
Savannah..	28.92	29.50	+58	26.00	843
Norfolk....	29.75	29.88	+13	26.25	4,570
New York.	29.35	29.80	+45	27.15	.....
Augusta...	29.06	29.31	+25	26.38	73
Memphis...	29.75	29.75	....	28.00	4,600
St. Louis..	30.00	29.75	—25	28.00	.....
Houston...	29.50	29.75	+25	26.30	4,648
Dallas.....	28.75	29.10	+35	25.70	4,270

The following differences on and off middlings are given as compiled from the reports received by the New York Cotton Exchange. The cotton grades marked ** are not delivered on contract.

	Dallas	Memphis	Montgomery	Augusta	Average
WHITE GRADES					
M. F....	1.75†	2.00†	1.62†	1.62†	1.85†
†S. G. M.	1.50†	1.75†	1.37†	1.37†	1.48†
G. M.....	1.25†	1.50†	1.12†	1.12†	1.20†
S. M.....	.75†	.75†	.75†	.75†	.73†
S. L. M..	1.25*	1.50*	1.25*	1.25*	.94*
L. M.....	2.50*	2.75*	2.50*	2.50*	2.09*
**S. G. O.	3.50*	3.75*	3.75*	3.75*	3.43*
**G. O....	4.50*	5.00*	5.00*	5.00*	4.65*
YELLOW TINGED					
G. M.....	.25*	.35*	.25*	Even	.24*
S. M.....	.75*	.40*	.63*	1.25*	.74*
**M.	1.75*	1.65*	1.50*	2.50*	1.70*
**S. L. M.	2.50*	2.75*	2.75*	3.75*	2.87*
**L. M..	3.25*	3.75*	4.00*	5.00*	4.04*
YELLOW STAINED					
G. M.....	1.00*	1.00*	1.25*	1.50*	1.38*
**S. M..	1.50*	1.50*	1.75*	2.00*	1.98*
**M.	2.00*	2.25*	2.50*	2.50*	2.68*
BLUE STAINED					
**G. M..	1.25*	.75*	1.13*	1.50*	1.25*
**S. M..	1.75*	1.25*	1.63*	2.25*	1.74*
**M.	2.50*	1.75*	2.32*	3.00*	2.61*

*Off middling. †Middling.

COTTON STATISTICAL DATA

Fluctuations of Futures

Option	Closed Apr. 23	For week High	Low	Closed	Change
May	29.02	30.70	28.94	29.47	+.45
June	28.65	30.17	28.91	28.98	+.33
July	27.65	28.95	27.42	27.85	+.20
August	25.80	26.70	26.00	26.00	+.80
September .	25.24	25.65	24.95	25.05	—.19
October	24.47	24.95	23.90	24.30	—.17
November ..	24.12	24.49	23.72	23.89	—.23
December ..	23.93	24.35	23.31	23.70	—.23
January ...	23.53	24.00	23.08	23.35	—.20
February ..	23.61	24.05	23.35	23.40	—.21
March	23.68	24.10	23.40	23.46	—.22
April	28.93	.....	.....	.....	.....

Spot Fluctuations for Week (Middling)

	N. Y.	N. Orleans	Liverpool
Fri., Apr. 25...	31.00c.	30.88c.	17.70d.
Sat., Apr. 26...	30.50c.	30.38c.	17.80d.
Mon. Apr. 28...	29.80c.	29.75c.	17.33d.
Tues. Apr. 29..	29.80c.	29.75c.	17.21d.
Wed. Apr. 30..	29.80c.	29.75c.	16.95d.
Thur. May 1...	30.30c.	30.25c.	17.21d.

Spot Fluctuations and Stocks

	Spot prices	This week	Last year
Galveston	30.00	120,784	95,582
New Orleans...	29.75	119,552	114,175
Mobile	29.50	4,218	1,898
Savannah	29.15	33,819	38,275
Charleston	.....	22,423	36,056
Wilmington ...	.....	10,417	11,373
Norfolk	29.88	62,696	60,567
Baltimore	30.00	1,431	2,759
Augusta	29.31	20,237	29,863
Memphis	29.75	63,785	75,385
St. Louis	28.75	8,762	14,314
Houston	29.75	102,708	84,021
Little Rock ...	29.75	12,820	24,984

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FAST-BLACKS & COLORS { For Woolen Mills a Specialty } WE SELL DIRECT

Cotton Markets—Continued

Staple Premiums Narrower

Tired Holders are Letting Some Longer Cottons Go

MEMPHIS, TENN., April 28—Offerings of tired owners of staple cottons have still further narrowed premiums. The 1⅛-inch staple brings, as heretofore for some time, about the same price as 1 11/16, while 1 3/16 brings very little more. One large lot of nearly 2,000 bales, some of it held for three or four years, has been sold recently at concessions, although these concessions were small. Some strict low middling 1⅛ staples were sold recently at 30c. which, at the time, represented 75 on, whereas, sellers have been demanding from 100 to 125 on.

The unsold stock estimated, is now 26,000 bales, approximately the same as at the corresponding time last year. The pressure to sell is by no means general, but comes from some who heretofore have held bullish views. There are others who continue to hold on the assumption that much higher prices will be seen before the new crop begins to move. The staple cotton association in a recent communication to its members states that it has an unsold stock of about 40,000 bales out of total receipts for the season of 107,000 bales.

Memphis Sales Small

Sales at Memphis during the week were small notwithstanding that demand was spoken of as fairly good, but it appeared to be for grades that are hard to find. Considerable offerings of blues went begging. Merchants continue to report difficulty or inability to obtain cotton in grades and in quantity to meet old commitments, and new business is being turned down for the same reason. Weather conditions in this territory during the week were not far from ideal for the new crop both as to favoring germination and affording opportunity for field work. Considerable cotton is up, and not a few growers are through with their planting. With no liklihood of interference from overflows, and with prospects for continued good weather, the planting of the crop in this territory should be completed by May 1. Little cotton has been worked out yet. So far the crop averages early, and appears to be getting a good start. Acreage is being increased somewhat as to the whole, but is being decreased as to staples.

Domestic Staples Quiet

Alexandria Corner in Egyptian Uppers Restricts Shipment Trade

BOSTON, Apr. 30.— Mill buying of domestic staples has continued limited and that of Egyptian shipment cotton has been rendered absolutely prohibitive by the corner on Uppers in the Alexandria market that has forced a further advance of about 150 points and that has advanced prices of Sak cotton sympathetically. The squeeze in Uppers has been centered on the June contract, the latter selling within about 60 points of May Sak. and spot Uppers being held at a premium of 150 points over spot Sak. June contracts appear to be controlled by two or three Alexandria speculators and the squeeze will probably end when the June contract goes out, if not before. New crop options are not appreciably affected, October contracts advancing 35 points to $32.70 within the week and the November contract 18 points to $38.25.

The only notable feature of the market on domestic staples has been the continued demand from two large speculative houses located in New York and the South, and which have been reported short of full inch to 1⅛-inch cotton in middling and strict middling grades; they have been scouring the mills as well as southern spot markets and their operations have undoubtedly been responsible for the upward tendency of premiums.

Mill demand has been confined to scattering small lots at practically unchanged prices; typical small sales include 100 bales of full 1 11/16-inch middling white Delta cotton at 350 points on May, and a lot of about the same size of full 1¼-inch white Delta cotton, half middling and half strict middling, at 37½c. Extra staples continue much easier in price than full inch to 1⅛-inch cotton of any grade.

Average prices for middling and strict middling hard western cotton (full lengths) for May-June shipments are as follows:

1 1/16 in.....	33 to34c.	35 to36c.
1 1/16 to 1⅛ in..	33½to34½c.	35½to36½c.
1 ⅛ in.....	34 to35c.	36 to37c.
1 3/16 in.....	35 to36c.	37 to38c.
1 ¼ in.....	36½to37½c.	39 to43c.

John Malloch & Co., Boston, quote Egyptian cotton for prompt shipment c. i. f. Boston, as follows: Medium Sakelarides, 44 15/16c., up 15⁄8c. from Apr. 23; Medium Uppers, 46⅜c., up 15⁄8c. They report closing prices Apr. 30 on the Alexandria exchange as follows: May (Sak.) $43.87, up 59 points from Apr. 23; June (Uppers) $43.25, up 140 points.

Market Statistics

Basis Middling

	Saturday, April 26	Thursday, April 17
10 markets average.....	30.27c.	30.64c.
Memphis	30.25c.	31.00c.

Premium Staples

First sales Factors' Table Memphis Grade Strict Middling. Prices Nominal

1 1/16-in.....	32 —32½c.
1⅛-in.	32½—33½c.
1 3/16-in.....	33½—34½c.
1¼-in.	35½—36½c.

Current Sales

	For Week	Week Previous	Week Before
Memphis, total.....	3,575	5,600	10,600
Including f.o.b.....	1,950	2,900	3,700
10 markets total.....	32,200	19,836	51,222

Memphis Receipts, Shipments, Etc.

	For Week	Last Year	Year Before
Gross receipts.....	10,719	6,274	11,896
Shipments	20,456	8,099	17,149
Net receipts.....	1,757	1,400	3,558
Total since Aug. 1, net	273,566	332,781	313,278
Total stock.....	66,676	77,453	153,258
Decrease for week..	9,536	2,467	6,889
Unsold stock.....	26,000	26,500	75,000
Decrease for week...	*1,706	1,500	2,000

*Increase.

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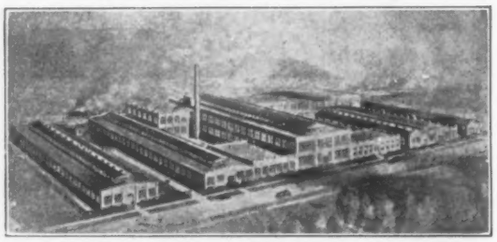

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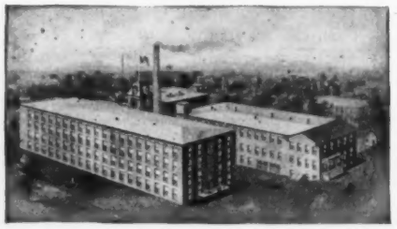

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WORSTED YARN MARKETS

New Business Small Factor

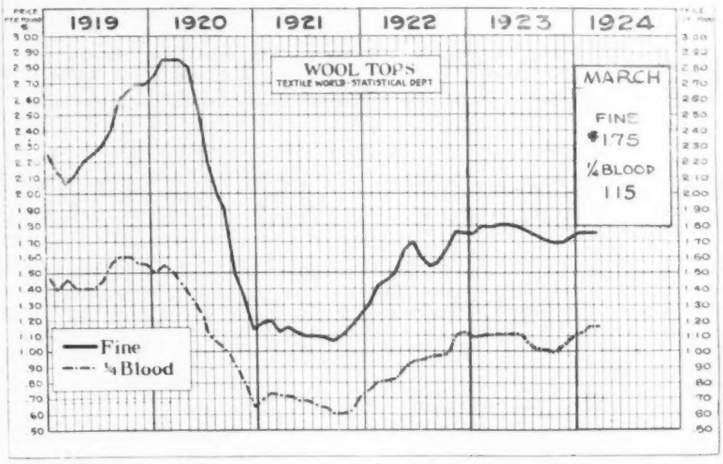
Spotty Interest—Varying Conditions—Dress Goods Quiet—Narrow Margins Necessary

PHILADELPHIA.—New business in worsted yarns is small. While the market is generally quiet, a spotty condition exists. Certain mills, particularly those making fancy men's wear fabrics, have secured a fair volume of orders at extremely low figures. These concerns have in several instances booked more business than they are able to deliver as specified, although it should be noted such cases are the exception to the condition in staple lines. The majority of men's wear manufacturers have insufficient orders to keep them running more than 50 per cent capacity. Sales of yarn to this trade have been confined to a few mills which are able to make these fabrics lower than their competitors, through cutting their overhead in half by night shifts, and by others having cheap yarn, which was purchased at the lowest prices of last year. Dealers report little interest shown in dress goods yarns, although a large sale of 2-50s, going to this trade at an exceptionally low figure has been mentioned. Knitting yarns continue dull, a slight improvement being reported from men's sweater makers.

The condition existing among men's wear mills demonstrates the fact mills are compelled to work upon a smaller margin of manufacturing costs than ever before. Yarn dealers who have been fortunate enough to have the yarn desired,—mixes usually being specified,—have done a fair business at close prices during recent weeks. Mills running on such orders have an advantage over their competitors as they have named exceptionally low figures to their customers and were able to book sufficient business to run them full time or better, while others quoted higher prices and failed to secure any business whatever. Dealers state those mills which had this foresight and acted promptly are the only ones with orders on their books, others being compelled to figure their costs on greater overhead charges and higher yarn costs. Several dealers report sales of filling-in lots of mixes and special yarns to men's wear mills making cassimeres.

Dress Goods Dull

Dress goods mills are finding it difficult to locate new business. The spurt in buying which was noted previous to Easter has disappeared, leaving many mills without orders. Small sales of 2-50s from dealers' stocks are reported at prices lower than $2.35, while spinners ask $2.50 for a good grade yarn in many instances. Single warp yarns going to this trade have been sold in limited quantities during the week. A number of dress goods manufacturers have mentioned the possibility of their entering the men's wear field unless business in their own line displays definite signs of improvement in the near future. Many look upon this tendency with misgivings as they state the majority of men's wear mills, while at present in slightly better position than dress goods plants, have insufficient orders to keep them engaged and believe the entrance of dress goods interests to this field will only complicate a difficult situation, making it more difficult for all and benefiting no one at this time.



Yarn Quotations Steady

Although sales of yarn are inadequate to take current output of spinners, quotations are steady at prices which have prevailed for the past five weeks. There are exceptions to this, as is natural when demand is small and spinners frequently must sacrifice yarn at low figures to secure liquid working capital. The fact quotations have not receded to a greater degree,—several stating the past two weeks have been as dull a period as they have experienced,—illustrates a firm foundation according to many factors. They feel yarn quotations will remain at this level and no doubt go higher upon resumption of buying, unless wool costs are lowered considerably, which appears doubtful to many at this time.

Some Sweater Business

In knitting yarns little activity is noted, the most favorable aspect being the slight increase reported in business placed by men's sweater makers, who have purchased 2-20s, 2-26s and 2-30s in small amounts at market prices Knitters have been reducing their stocks of finished goods, leading several to expect an increase in yarn sales to these trades this month, when stocks are replenished to some extent at least. Hosiery and underwear mills, usually placing yarn contracts at this time of the year for their fall lines, say they have been unsuccessful in securing new business at yet to warrant them in buying additional yarn. Wool spun yarns continue in good request, the majority of spinners of these yarns being well sold ahead.

Quotations

(Corrected at Close of Business Wednesday)

Bradford System

2-12s to 2-16s, low com.	1 20—1 25
2-20s to 2-24s, low ¼	1 25—1 35
2-20s to 2-26s, ¼ blood	1 50—1 60
2-26s to 2-30s, ¼ blood	1 55—1 65
2-30s to 2-32s, ¼ blood, S. A.	1 60—1 65
2-32s, ¼ blood, domestic	1 65—1 70
2-20s, ⅝ blood	1 65—1 75
2-26s, ⅝ blood	1 70—1 80
2-32s, ⅝ blood	**1 75—1 85**
2-36s, ⅝ blood	**1 80—1 90**
2-32s, ½ blood	2 05—2 10
2-36s, ½ blood	2 10—2 15
2-40s, ½ blood	2 15—2 20
2-50s, high, ½ blood	2 35—2 40
2-50s, fine	2 45—2 50
2-60s, fine	2 85—2 95

French System

20s, quarter	1 50—1 60
20s, high quarter	1 60—1 70
20s, ⅝ blood	1 75—1 80
30s, ⅝ blood	1 85—1 90
30s, ½ blood	2 15—2 20
40s, ½ blood	2 30—2 35
50s	2 50—2 55
60s	2 95—3 00

Knitting Yarns in Oil (Bradford)

2-20s, low ¼ blood	1 25—1 30
2-18s to 2-20s, ¼ blood	1 50—1 60
2-26s, ¼ blood	1 55—1 65
2-30s, ¼ blood	1 60—1 70
2-20s, ⅝ blood	1 70—1 80
2-20s, ½ blood	2 30—....

French Spun Merino, White

30s, 50-50	1 70—1 80
30s, 60-40	1 80—1 90
30s, 70-30	1 90—2 00
30s, 80-20	2 00—2 10

Yarns Unimproved

Lack of Business Main Feature—Quotations Largely Nominal

BOSTON.—The worsted yarn market shows a slight improvement this week, but no major development has taken place nor is it considered likely that there will be any broadening out of business in a large way until tops and yarns have been able to adjust themselves more successfully to the basal situation in wools. Wools are a trifle softer than they were at the beginning of the month although this hardly applies to the limited amounts of fine merinos held by dealers in bond. Top makers are endeavoring to meet the market as made by the limited amount of business offered by spinning interests and have during the last few days shaded their prices for half blood and fine tops three or four cents per pound. Spot lots of tops have been purchaseable at larger concessions. But the situation, according to good judges, is not going to be righted in this fashion; the time is close at hand when cheap tops based upon the possession of low-priced wools will be completely out of the way and when such a time comes unless the wool market should have suffered a considerable decline spinners will be up against a very strong market for tops.

It is now between seasons and the trade is beginning to look forward with as much optimism as they are able to acquire to the approaching light-weight season at which time it is hoped that the worsted industry will experience something of a substantial come-back.

Quotations at the present time ought to be considered nominal. Low-priced spot lots are still in evidence but can hardly be considered as establishing the market. In Bradford weaving yarns 2-20s, 50s, are quoted $1.55-60; 2-36s, 58s, $1.95-$2.00; 2-40s, 58s, $2.10-15; 2-40s, 60-64s, $2.25-30; 2-50s, fine, $2.45-50; single 40s French, $2.20-30; single 50s, fine, $2.40-50; single 60s, Aus., $2.80-90.

Worsted Yarn Trade Note

E. Jeoffrey Nathan, woolen and worsted yarns, Boston, Mass., announces that L. E. Wilson, formerly connected with Percy A. Legge's office, is now associated with his business.

Tops Under Pressure

Combers Meet a Lower Market—Quarter Blood Noils Stagnant

BOSTON.—The outstanding feature of the market this week is the growing pressure being brought to bear

Dependable All Ways - Always!

A piece of cloth is only as perfect as the material used in its construction.

When using our Spun Silk you get correct colors—correct materials—no troubles.

We can be of service to you—communicate with us!

American Silk Spinning Co
Providence, R.I.
New York Office 1 Madison Ave.

Worsted Yarn Markets—Continued

upon top-makers to lower their prices. Standard makers are endeavoring to maintain a concessionary mood and during the last week have actually sold limited amounts of three-eighths blood, half blood and fine tops at prices that would have been impossible it is said unless such combers had had limited amounts of lower priced wool in their possession. There is little disposition to sell standard makes of tops in quantity because it is considered that it will be difficult if not impossible to cover in wools either at the present time or later in the year.

Lower prices are being urged upon top makers by spinners who claim that they cannot possibly place business on the high levels now obtaining. Large business is offered, it is understood, in fine tops at $1.67 and in half blood tops at $1.57 and in low three-eighths blood tops around $1.23. Spot lots of tops at what are termed by some factors "recklessly low prices" still depress the market and raise the question as to how it is possible for standard commodities to be offered so far below replacement costs. Some of these lots are distinctly distress sales while others represent the working up surplus of cheaper wools.

Noil prices hold up firmly, supported by limited supplies rather than by mill demand. Mills are calling chiefly for three-eighths blood grades. Quarter bloods which earlier in the year were in very good demand are now almost completely stagnant. There was considerable accumulation of quarter blood grades by one or two houses in anticipation of continued demand which fell off almost over night. Quarter blood noils therefore are obtainable at concessions. American buying in Bradford has come to an end. Values there are on too high a level to permit operations. For the week ending April 26, 82 bales of wool noils arrived here and 14 bales of mohair noils.

Current Quotations

	Tops	Noils
Fine territory	$1.73-1.75	92-95c.
Half-blood	1.63-1.65	88-92c.
High ⅜ blood	1.42-1.45	85-88c.
Aver. ⅜ blood	1.37-1.40	80-85c.
Low ⅜ blood	1.25-1.28	78-80c.
High ¼ blood	1.15-1.18	73-75c.
46s	1.00-1.02	68-70c.
44s	95- 96	60-65c.
40s	90- 91	60-63c.
36s	87- 88	55-60c.

SILK YARNS

Art Silk Demand Broadening Out

Slightly More Active Inquiry from Some Sources, but All for Immediate Delivery

Demand for artificial silk gives signs of broadening out although users are still restricting their purchases to immediate requirements. There is little or no buying for the future despite the reassuring statements of the leading producers that the possibility of any further cuts was remote. The better inquiry arises from the fact that certain manufacturers are starting up production again after having their mills closed for a month or two. This applies particularly to the knitted outerwear. Hosiery demand maintains a good volume despite the attractive levels of the raw market.

Dealers state that the lower qualities such as the C and D grades are being used to a greater extent than heretofore. Manufacturers who thought that the A quality was none too high, now find that the C quality runs all right on their machines and are consequently using it exclusively. Combination yarn prices were raised slightly due to the stronger trend of raw silk quotations.

It Never "Rayons" but It Pours

The deluge of names now being received to take the place of artificial silk shows no signs of abating. Nearly everyone has his own private opinion of what the new term should be and few are backward in coming forward. Many of the suggestions received are very good but unfortunately all cannot be used. The latest brain-child of the producers committee is "rayon" and it fills the bill nicely. It will probably be used by all those who had a hand in its selection, though "Glos" still has its adherents.

Prices are as follows:

	A Quality unbl'ched	B Quality unbl'ched	C Quality unbl'ched
60 Denier...	$3.40	$3.15	....
70 Denier...	3.25	3.05	....
80 Denier...	3.10	2.90	....
90 Denier...	3.00	2.75	....
100 Denier...	2.90	2.40–2.50	$2.20
120 Denier...	2.45	2.25	1.95
130 Denier...	2.25	2.00–2.05	1.75
150 Denier...	2.00	1.80	1.50
300 Denier...	1.75	1.60	1.45

Combination yarns are as follows:

80 Denier cellulose

1 end 13/15 raw silk	$5.50
2 end 13/15 raw silk	5.65
3 end 13/15 raw silk	5.80

150 Denier cellulose

1 end 13/15 raw silk	3.15
2 end 13/15 raw silk	3.45
3 end 13/15 raw silk	3.85

Spun Silk Firmer

Strength of Raw Silk Makes Producers' Quotations Stronger

The strength shown by the raw silk market was communicated to some extent to spun silk. Seliers were much firmer in their quotations although advances are not yet being considered. It is believed that the steady decline which has been in progress since the earthquake period has at last been arrested.

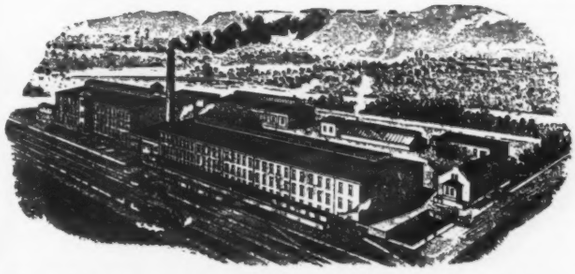
Business continues on about the

Pocasset Worsted Company, Inc.

Worsted Yarns

Office and Mills *Thornton, R. I.*

MERION WORSTED MILLS



Sell Direct

Fine French-Spun Worsted and Worsted Merino Yarns

WHITE NATURAL AND FANCY MIXES IN SINGLE AND PLY FOR KNITTING AND WEAVING

Mill and Office
WEST CONSHOHOCKEN, PA.

Hosey Worsted Co.

WORSTED YARNS

for Knitting and Weaving Trade

BRIDGEPORT, MONT. CO. PENNA.

87 YEARS OF MANUFACTURING

means that

THE EATON RAPIDS WOOLEN MILLS EATON RAPIDS, MICHIGAN

Have attained the highest degree of perfection in the production of Woolen Yarns for the knitting and weaving trade.

FOUNDED 1836

ART SILK
TOPS and NOILS

Recognized as the standard by spinners of Quality

S. FEATHER CO.
110-16 Erie St., Camden, N. J.

CARD-CLOTHING
AND
NAPPER-CLOTHING
of the World Renown
Peter **Wolters** Make
may now be ordered through

The best is always the cheapest!

When ordering new machines, insist on having **Wolters** Wire. The Patented, specially treated clothing with re-hardened points will last over three times as long as other products. Give it a fair trial and be convinced.

Prices and Particulars Gladly Given.

L. CLARENBACH, 159 Hamilton Ave., Passaic, N. J.
Sole U. S. Representative

R. H. HOOD COMPANY, Inc.
Established 1885
Manufacturers of
COMB CIRCLES and FALLERS
For Wool, Silk, Flax and Jute
WORSTED MACHINERY REPAIRS
19th and Westmoreland St. Philadelphia, Pa.
English Cast Steel Pins, Circle Plows, Roller Covering, Roller Leather

WINDLE
CLOTH DOUBLERS
WINDERS and MEASURERS
For Woolen, Cotton and Silk Goods
Felted Fabrics, Etc.
J. E. WINDLE Worcester, Mass.

JAMES DOAK JR. COMPANY
WORSTED SPINNERS
KENSINGTON PHILADELPHIA

ASHWORTH BROS.
Manufacturers of
Card Clothing of Every Description
FALL RIVER, MASS.

AMTEX
TRADE MARK REGISTERED
Spinning and Twisting Tapes
and Double Loop Bands
AMERICAN TEXTILE BANDING CO., Inc., Germantown, Philadelphia

DOMINION COMBING MILLS, LTD.
TRENTON, ONTARIO, CANADA

TOP MAKERS

All grades, both oil and dry combed, for immediate shipment.

We guarantee prompt deliveries

OSCAR HEINEMAN CORPORATION
RAW & THROWN SILK
CHICAGO

COTTON AND WOOL
MIXED YARNS
MERINOS
WOOL PERCENTAGES UP TO 25%
Yarns of Special Interest to Hosiery and Underwear Manufacturers
THOMAS HENRY & SONS INC.
P. O. STA. E PHILADELPHIA, PA.

WORSTED AND MERINO
JWD FRENCH SPUN YARNS
FOR KNITTING AND WEAVING
Manufactured by
JULES DESURMONT WORSTED CO.
WOONSOCKET, R.I.
PHILADELPHIA PROVIDENCE BOSTON
THOMAS H. BALL
SELLING AGENT
NEW YORK MILWAUKEE CLEVELAND

O. J. CARON
WORSTED AND WORSTED MERINO YARNS
166 W. JACKSON BLVD., CHICAGO

Ludwig Littauer & Co., Inc.
THROWN SILK, Tram, Organzine, Artificial Silk YARNS
Domestic and Imported, Plain, Gassed and Mercerized, Polished and Turkey Red Cotton.
Tinsel Thread
Best Quality Harness Twine
30-38 East 33rd St. New York
Silk Throwing Mills
CARTHAGE, BEACON and YONKERS, N. Y.

WILLIAM RYLE & CO.
381 Fourth Ave. New York
Cor. 27th Street
Thrown Silk Yarns
For Silk, Woolen Worsted Cotton and Knitting Mills

PROMPT SERVICE
RIGHT PRICES
BONE DRY HOSIERY FINISHING BOARDS
THAT WORK ABSOLUTELY SMOOTH
Jos. T. Pearson & Sons Co.
1825 E. Boston Ave. Philadelphia, Pa.

Star Worsted Company
YARNS
FITCHBURG MASS.

Rockwell Woolen Co.
Leominster, Mass.
Manufacturers of
WOOLEN and MERINO YARNS
FOR WEAVING and KNITTING
Heather a Specialty Mixtures and Decoration Yarns

Telephone Main 3593 Established 1854
CROSBY & GREGORY
HEARD, SMITH & TENNANT
PATENTS
Old South Building Boston
Patents and Patent Cases Trade Marks : Copyrights
Special Attention to Textile Invention

L. T. IVES CO.
Established 1874 Manufacturers of all kinds of
Spring Knitting Needles
Slides, Sinkers, Jacks, Etc.
NEW BRUNSWICK, N. J.

Silk Yarns — Continued

same scale as previously with a steady demand from manufacturers for filling in purposes. An increased interest on the part of users during May would not be surprising, however, due to the fact that a number of manufacturers who have been working off stocks during the spring will be forced to come in the market again. Schappe sales continue small with the higher Continental exchanges acting as an effective check.

Prices are as follows:

60-2	$5.65	30-2	$5.35
50-2	5.55	20-2	5.25
40-2	5.45	60-1	4.60

Artificial Silk Foreign Trade

Imports of artificial silk yarns, threads and waste during March, 1924 totaled 343,699 lbs., valued at $169,379 as against 718,272 lbs., valued at $989,696 during the corresponding month of 1923. For the nine months ending March, 1924, the imports were 4,820,325 lbs., valued at $4,735,533 as against 3,156,601 lbs., valued at $3,387,136 during the corresponding period of the 1923 fiscal year. Exports of manufactures of artificial silk in March, 1924 reached a valuation of $412,331 as against $699,305 in March, 1923; and for the nine months ending March, 1924 they totaled $4,207,241 as against $5,910,663 for the nine months ending March, 1923.

Communication

Artificial Silk Name

SMITHSBURG, MD.

EDITOR, TEXTILE WORLD:

There have been of late quite a number of suggested names for the new article which, in numerous cases, is taking the place of the real silk and much to the loss of the consumer. Why not call it by its real name or an abbreviated name that would suggest its nature? There have been quite a number of names suggested that have no meaning so far as the name is intended to represent the article.

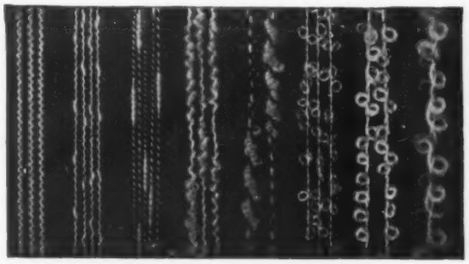
We have our genuine natural fibres for manufacture, wool, cotton, silk, flax and the like, and anything to look like them would naturally be artificial. As we realize the article under discussion is an artificial product why not use a name that would indicate it is artificial? So why not call it "Artex," showing it to be an artificial textile product?

Any article containing artificial silk will not wear with the real silk and the general public does not know the difference between the real and artificial. Why not give it a name that is suggestive of its nature?

G. W. SHEELEY

PATERSON, N. J. The Dixie Silk Co., 54 Hamilton Ave., which started the manufacture of broad silks last June, has engaged a night shift. Equipment consists of 22 box looms.

WOLF, STRAUSS & CO., INC.
65 Madison Ave., New York
Distributors of the Celebrated
Bemberg Tram
(The Ideal Yarn)
Looks Like Silk
Feels Like Silk
Wears Like Silk



TOULSON YARN CO., INC.
Bridgeport, Conn.
Novelty Yarns
of Every Description
SELLING AGENTS N. B. KNEASS BROOKS BOSTON NEW YORK and PHILADELPHIA

Woolen and Merino Yarns
WEAVING KNITTING
Manufacturers Since 1864
JONATHAN RING & SON, Inc.
PHILADELPHIA, PA.

Artificial Silk Waste
Imported in Carload Lots
Large Stocks Always on Hand
N. T. JACKSON, INC.
329-331 Fourth Ave. New York
FOREIGN OFFICES:
Berlin Amsterdam Stockholm London

B. S. ROY & SON CO.

EST. 1869

Grinders

FOR

Woolen and Cotton Cards

Garnetts, Shears, Nappers & Calender Rolls

Write for prices on your needs

WORCESTER, - - - MASS.

"HARDY" BRUSHES

Instead of ordering "so many mill brushes" hereafter specify "Hardy Mill Brushes" and you will get all the satisfaction and service that mill brushes CAN give.

For more than 25 years we have been furnishing the leading mills with brushes noted for their quality, durability and service.

We will gladly submit samples free of cost. Write for Booklet.

FRANK H. HARDY, Andover, Mass

APPERLY FEEDER FOR SECOND BREAKER AND FINISHER CARDS

PERFECT MECHANISM

EFFICIENT POSITIVE UP TO DATE

FIFTEEN THOUSAND IN USE

GEO. S. HARWOOD & SON 53 STATE ST., BOSTON, MASS.

JAY EM BEE **SPOOLS** ARE GUARANTEED

For All Shipping and Packing Purposes

J. MORRIS BROWN

406 Leverington Ave. PHILA.

BRADFORD OILS

For Wool and Reworked Wool

BRADFORD OIL COMPANY Inc.

PALMER, MASS

Thread and Silk **SPOOLS** of any Description

Made from one piece, up to 6" long and 3" dia.

We are located in the best white birch region. Our work and prices seem to satisfy the most particular customers. We can give any finish desired. Estimates furnished on samples submitted.

E. L. Tebbets Spool Company, Locke's Mills, Maine

Birch Brothers

TEXTILE FINISHING MACHINERY. INVENTOR OF "CORONATION" CONTINUOUS CRABBING, CLOTH OPENING and FOLDING. PIECE END SEWING MACHINES, ETC.

SOMERVILLE, MASS.

Berry Wheels

Will keep your dye house clean

Try them and see

A. HUN BERRY FAN CO.

Boston, Mass.

Philadelphia Wool Scouring and Carbonizing Co.

WOOL

Scoured and Carbonized

Freight Address: Coral St. Sta., P. & R. R. R. Somerset and Trenton Ave., Phila. Pa.

FRANCIS WILLEY & CO., INC.

WOOL MERCHANTS TOP MAKERS

Summer St., BOSTON 10 Chestnut St., PHILADELPHIA

Agents for Francis Willey & Co., Bradford, England

THE "MURDOCK"

Keep Your Spindles fully equipped with the

Murdock Bobbin Holders

in the perfection of your goods

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Chicago Wool Company

SCOURED WOOL

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STRUCTURAL STEEL AND IRON

For Every Building Purpose

THE WILSON COMPANY

Building Department

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Steel Plate Construction

Steel Storage Tanks, Blast Furnaces, Gas Holders

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Original Manufacturers

STEEL

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Bars	Boiler Fittings
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Rails	Tool Steel
Plates	Alloy Steel
Sheets	Floor Plates
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Tubes	Machine Tools

Write for the Ryerson Journal and Stock List, the "Key" to Immediate Steel.

JOSEPH T. RYERSON & SON INC.

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SHIRLEY MILLS

SHIRLEY, MASS.

Manufacturers of

REWORKED WOOL

Also Custom Carbonizing and Picking.

Sales Office: Boston, Mass.

(Chelsea Station)

Looms

The Standard for all Narrow Fabrics

FLETCHER WORKS

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FOREIGN WOOL DOMESTIC

252 Summer Street : BOSTON

WOOL MARKETS

Dullness at Mills Impresses Market

No Bids for Jericho Clip—Light-Weight Season Uncertainty is a Factor

BOSTON.—The wool market seems rather stale and comes to the end of the month with wools rather softer, foreign wools and tops firm and noils strong and high. Summer Street is rapidly running into what might be termed a short stock market and prices are likely to snap back at any time with considerable vigor. The New York goods market is beginning, it is said, to place more confidence in the views entertained by wool interests and is becoming less bearish though still awaiting better business. Summer Street is looking forward to the approaching light-weight season but owing to the unsatisfactory condition in worsted manufacturing it is feared in some quarters that low prices will be made by the big company at its July opening.

The Utah, Jericho, clip is being shorn and will approximate 800,000 pounds of possibly heavier shrinkage than last year. No bids have yet been made for this accumulation, selling of which is always a matter of interest and importance to the street. The house purchasing the clip last year paid 51c. a pound and it was transferred by them direct to the manufacturer. There is an unconfirmed rumor that 45c. has been offered. Some Utah wools have been purchased as low as 40½c. while at the present time 42-43c. is being paid for small quantities by manufacturers.

London sales open May 6. Total offerings will approximate 115,000 bales of which amount 46,500 bales are New Zealand wools, 19,500 bales South American wools, together totaling 57% of the catalogue. Fine foreign worsted wools are likely from now on to be quite limited in supply. This is an important consideration in view of the approaching light-weight season.

In So. America there is little wool left for American buyers at any price. The 1923-24 Uruguayan clip estimated at 110,000 bales of 450 kilos or approximately 110,000,000 pounds has all been sold with the exception of 4,000 bales and at high prices.

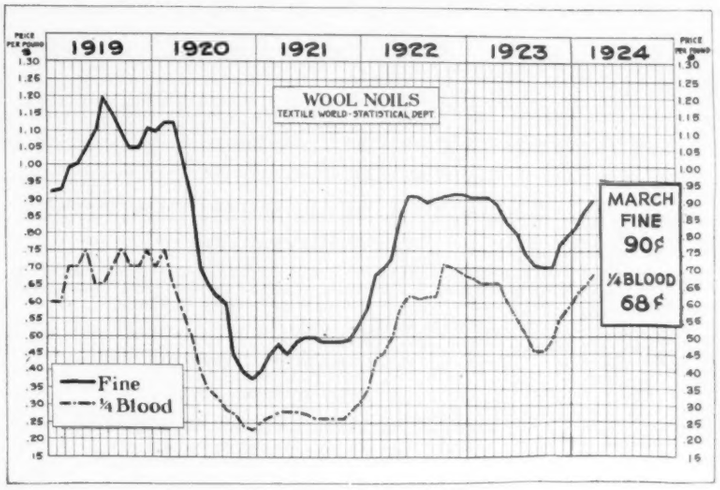
Receipts and Shipments

Receipts of wool in lbs. for the week up to Wednesday follow:

	1924	1923
Domestic	838,200	3,149,300
Foreign	937,500	4,704,100
Total	1,775,700	7,853,400

Receipts of wool in lbs. since Jan. 1, 1924, compared with the same period in 1923 are as follows:

	1924	1923
Domestic	39,587,600	29,335,300
Foreign	75,574,900	180,643,400
Total	115,162,500	209,978,700



Shipments of wool for the week ending and including Apr. 23 follows:

Boston & Maine	757,000
Mystic	
By sea	703,000
Boston & Albany	525,000
New Haven	1,671,000
Total	3,656,000
Shipments during prev. wk.	3,496,000
Shipments thus far for 1924.	68,373,000
Shipments similar date 1923.	56,422,000

Boston Wool Trade Notes

Herbert J. Holland, who manages the Boston branch office, at 184 Summer St., for his father, H. Holland, wool and tops, Bradford, England, has returned from a very pleasant trip to Bermuda.

F. Nathaniel Perkins, secretary of the Boston Wool Trade Association has been elected president of the company that issues a monthly publication known as *New England Business*, devoted to promoting general business throughout New England.

Edwin W. Sadler has opened offices at 35 S. Front street, Phila., where he will deal in wool, noils and waste.

Quotations

(Corrected at Close of Business Wednesday)

Ohio, Pennsylvania and West Virginia

Fine clothing	48—49
Fine delaine	—55
½ blood	54—55
⅜ blood	54—55
¼ blood	50—51

Michigan and New York

Fine delaine	**53—54**
Fine clothing	46—47
½ blood	52—53
¼ to ⅜ blood	48—53

Indiana, Missouri and Similar

½ blood	53—54
⅜ blood	52—53
¼ blood	48—50
Common	40—41

California
(Scoured Basis.)

Northern, 12mo	1.30—1.35
Sp'g middle counties	1.15—1.20
Southern, 12mo	1.08—1.12
Fall free	1.00—1.05
Fall defects	.95—1.00
Carbonized	1.05—1.12

Texas
(Scoured Basis.)

Fine 12mo	1.30—1.35
Fine 8mo	1.10—1.15
Fine fall	1.10—1.12

Pulled—Eastern
(Scoured Basis.)

Fine	1.32—1.35
A Super	1.15—1.20
B Super	.95—1.00
C Super	.75— .80
Chgs fine	1.20—1.25
Medium B	.98—1.03
Medium C	.80— .85

Montana, Idaho and Wyoming
(Scoured Basis.)

Staple fine	1.30—1.35
Do. ½ bld	1.15—1.20
Fine & fine medium clothing	1.19—1.24

Utah
(Scoured Basis.)

Fine	1.20—1.35
Fine medium	1.15—1.18

Colorado and New Mexico
(Scoured Basis.)

Fine	1.25—1.30
⅝ blood	1.00—1.05
½ blood	1.20—1.25

Nevada
(Scoured Basis.)

Fine	1.20—1.25
Fine clothing	1.15—1.20

Mohair
Domestic

Best combing	80—85
Best carding	70—75

Foreign (In Bond)

Turkey	40—45
Cape	35—40

Foreign Clothing and Combing
(In Bond.)

Scoured Basis—Cape:	
Combing, choice	1.21—1.23
Combing, good	1.14—1.16
Clothing, choice	.95—1.00
good	.90— .95
Australian:	
70s	1.25—1.30
64s	1.22—1.25
56-58s	.95—1.05
Grease Basis—	
Montevideo:	
56-58s	54—55
56s	52—53
50s	45—46
Buenos Aires:	
46s	38—39
40s	31—32

Foreign—Carpet
(Grease Basis—In Bond.)

Aleppo: Washed	35—36
Angora	19—20
Awassi: Washed	29—31
Karadi: Washed	28—30
China: Combing	24—26
No. 1 Wild ball	36—38
Wid. filling	23—24
Szechuen ass'm	21—23
Cordova	24—25
Khorassan: White, 1st clip	28—30
2d clip	23—24
Mongolian: Urga	30—32
Manchurian	19—21
Black Face	21—22
Servian skin wool	25—26
East India: Kandahar	31—33
Vickan'r	35—42
Joria	54—60

Quotations Less Steady

Dealers' Asking Prices Lower—Volume of Sales is Small

PHILADELPHIA.—A number of sales in quantities averaging 25,000 lbs. each, have been made this week at prices nearer buyer's ideas than would have been considered two weeks ago. While values are reported by dealers to be less steady, there is little inclination noted to sacrifice better grades. Buyers desire to purchase quarter bloods at 46c. in the grease or about 80c. scoured, which is lower than dealers will consider. Relatively higher prices can be secured for half blood grades and above, than for quarter and three-eighths wools. Pulled grades are quiet, with asking prices several cents lower than the highest figures recently demanded.

The largest sales noted during the week were 50,000 lbs. quarter blood fleece at 47 to 49c.; 25,000 lbs. half blood fleece at 48 to 52c.; 15,000 lbs. fine at 46 to 50c. and 40,000 lbs. fine delaine and fine clothing at private terms. These wools were taken by mills having orders requiring these grades.

Territory Prices Lower

Territory grades are quoted on a lower basis, the majority asking $1.30 to $1.35 for fine staple, $1.15 to $1.20 for half blood and $1.00 to $1.05 for three-eighths. Dealers find it more difficult to secure market prices for medium wools than for finer grades as foreign wools which compete with domestic fine grades would cost considerably more than corresponding domestic wools.

Pulled Wools Quiet

Pulled wools are moving in small amounts at the lower range of quotations. Dealers say prices are holding fairly steady although sales of large amounts have been infrequent for several weeks. They believe prices will go higher in the fall when they look for active business. Several are backing this assumption by substantial purchases at this time. Carpet wools are quiet, prices remaining unchanged.

More Business Noted

Wool Moves at Chicago—Interest in B Wools

CHICAGO.—More is doing in the local wool market, it would seem by the reports available and prices are about unchanged. Western scoured A has sold at $1.05 and choicer lots brought few cents more. Really nice fine AA wools are held at $1.15 and $1.20.

Considerable interest develops for B wools and same have sold at 85 to 90c. for the western variety. Fed sheep wools from outside stations have also sold.

Specified by the Leading Mills

The popularity of Coe's Endless Braided Bands among mills whose products are foremost in quality arises from their proved usefulness for the various banding purposes in the mill. These braided bands have received the endorsement of practical textile men who have found them superior to spliced rope.

That the users of these bands are well pleased is indicated by the number of repeat orders we are constantly receiving from representative mills. An initial order will explain why this is so.

U. S. Band Co.
Holbrook, Mass.

COTTON FLOCKS
FOR FLOCK DOT FABRICS
Guaranteed free of fillers or foreign matter,—Write for samples
CLAREMONT WASTE MFG. CO., DEPT. W, CLAREMONT, N.H.

"Maniplex" Sewing Machines

For Multiple Stitching

Built for all purposes where a number of rows of stitching are required. With either form of stitch, single thread chain, double thread chain, or lock stitch, sewing material from 1-16 inch thick up to 1 inch thick, and up to 120 inch wide. Furnished with any desired number of needles, spacing to suit requirements. We also build Paper Slitting Machines and design special machinery.

L. F. FALES, Walpole, Mass., U. S. A.

Line at Side Actual Size

AT LAST, A REAL MOTH DESTROYER AND PREVENTATIVE

EDGAR A. MURRAY'S MOTH DOOM sprayed directly on Wool, Yarns, Finished Cloth, Rugs, etc., not only destroys all worms and larvae, but leaves a preventative against future attack.

Will not stain the finest fabric.
Guaranteed ABSOLUTELY.
NO RIDDANCE — NO PAY
For full particulars apply to
HAINSWORTH SUPPLY COMPANY
2411 N. 6th St., Phila., Pa.

TAG AUTOMATIC TIME - TEMPERATURE CONTROLLERS for PIECE-DYE KETTLES

TAG Control for piece-dye work not only assures more uniform dyeing with fewer redyes, but also effects remarkable steam economies. Impartial tests showed a clear-cut saving of 28.6 per cent in steam consumption, the result of TAG Automatic Control compared to hand-valve regulation. Another advantage is that the same dye-house staff can take care of more kettles with TAG Control. Hundreds of these Controllers are in use today.

Catalog T-902 gives full details.

C. J. TAGLIABUE MFG. CO.
18-86 THIRTY-THIRD ST., BROOKLYN, N.Y.

Insist on Mercury Thermometers with the TAG-Hespe RED Reading Column

TAG TAGLIABUE SINCE 1859

ALL STEEL ECONOMY FIRE PROOF
BALING PRESSES
ALL SIZES FOR ALL PURPOSES
LARGEST LINE BUILT IN U.S.A.
ECONOMY BALER CO., DEPT. J, ANN ARBOR, MICH. U.S.A.

Maple Flooring IS THE BEST Factory Flooring

Where hard usage puts flooring to the supreme test,—in factory, warehouse or mill, *Maple Flooring* is always preferable.

Write us today for full information as to sizes and grades, also delivered prices in any quantity, anywhere.

E. BARTHOLOMEW HARDWOOD COMPANY
4050 Princeton Avenue.
CHICAGO

Gears

We make cut gears for all purposes, from the smallest pinion to gears 14 ft. in diameter.

William Ganschow Company

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FISHER
Type No. 171

No danger of liquids rising beyond a set level when this float valve is on the job. Sturdy as an ox, it outlives expectations.

The
FISHER GOVERNOR CO.
Dependable Power Plant Specialties
Marshalltown, Iowa

DNUMBER 1 BELT STOCK
Registered in U. S. Pat. Off.
Textile Mill Strapping
Tight Grain, Strong Fibre Slowly Tanned Leather
THE DRUID OAK BELTING CO., Inc.
John E. Deford, Pres. & Treas.
Baltimore :-: Maryland

GORDON BROTHERS, INC.
HAZARDVILLE, CONN.
Reworked Wool, Wool Waste
Custom Carbonizing by Dry Process Only

Gumbinsky Bros. Co.
Reliable Graders of
WOOLEN RAGS
Graded Linseys a Specialty
Chicago—Illinois

OLIVER L. BALLARD
Boiler Room Engineering & Contracting Dismantle and Remodel your Boiler Room. Agent for Jointless Fire Brick, Vulcan Soot Cleaner and Feed Water Regulator. Rigging, Erecting, Furnace Work Specialty 36 Years' Experience, all kinds of Boilers P. O. Box 154, Charlotte, N. C.

The W. L. Loeser Co.
Buffalo, N. Y.
Careful Graders of
WOOLEN RAGS
DELAINES--LINSEYS

RAGS, SUBSTITUTES AND WASTE

Substitute Industry in Dull Period

Slight Downward Trend in Rags and Fibres—Quarter Blood Wastes Not Moving

Incoming orders for reworked wool are small in volume and few in number. To obtain larger business manufacturers are willing to shade prices and are able to do this with little or no inconvenience to themselves inasmuch as the rag market is more favorable to the buyer at the present time. There is no change in the character of the materials required by woolen mills. They still run to bright and light-colored fine stocks. Knitted materials are processed in large quantities and it is said that stocks of foreign rags are being worked up very rapidly. Imports of additional knit stocks are in small dimensions and are higher priced than they were during the periods last year when American buying of this class of rags in British markets was very large.

Better business is looked for before the end of the next month, but the ground upon which such expectation is based is not very clear. The woolen industry may receive additional re-orders but as to their volume no one can say prior to the event. The manufacture of overcoatings has been proceeding at such a rapid rate for a considerable period and the passing of the finished products over to the public has been in the main so unsatisfactory that it seems not unreasonable to suppose that this branch of wool manufacturing is in grave danger of overproduction. Retailers of overcoats in some sections of the country have had a hard time in disposing of their stocks. From now on interest in woolens is likely to be displaced by a larger appreciation of and attention to worsteds.

Business in the rag market is not particularly encouraging. Reworked wool men able to purchase rags one or two cents a pound below prices of a month ago are in a position to make concessions to woolen manufacturers. Imports at the present time are very limited and it seems altogether unlikely that there will be anything like the volume of rags coming in from abroad this year as was the case in 1923.

Quiet Waste Market

The wool waste market is trying to do the best it can with limited amount of new business coming in. Traders are not able to find much material on the street that they can turn over at a profit. The market is dull and there seems to be no immediate indication that any change for the better is pending. Woolen mills were heavy buyers in the early part of the year and are apparently fairly well supplied for their immediate needs. It is quite likely that they hope by deferring their purchases to the last possible moment to "bear" the market and so obtain lower prices.

Quotations

(Corrected at close of business Wednesday)

Wool Waste

Lap—	
Fine White	$1.30—$1.35
Fine Colored	1.10— 1.12
Medium Colored	.65— .70
Ring—	
Fine Australian	1.30— 1.32
Fine Domestic	1.25— 1.28
Thread White Worsted—	
Fine	.92 .95
½ blood	.80— .85
⅝ Blood	.72— .76
¼ Blood	.60— .65
Low	.40— .45
Thread Colored Worsted—	
Fine	.37— .41
½ Blood	.35— .39
⅝ Blood	.33— .35
¼ Blood	.31— .33
Low	.28— .30
Carpet	.19— .21
Card—	
Fine White	.50— .55
Medium White	.35— .40
Fine Colored	.18— .20
Medium Colored	.08— .10

Reworked Wool

	Cents per lb.
Serges—	
Blue	24—25
Brown	29—30
Green	29—30
Red	34—35
Black	21—22
Knits—	
White	58—59
Red	45—46
Brown	39—40
Merinos—	
Fine light	37—38
Fine dark	20—21
Coarse light	21—22
Worsted Skirted—	
Light	23—24
Blue	21—22
Dark	15—16
Brown	21—22

Men's Wear Clips

Worsteds—	
Dark	15—16
Light	21—22
Brown	28—29
Blue	32—34
Black	25—28
Flannels	
Blue	15—16
Black	15—16
Green	16—17
Light	19—20
Tan	22—24
Scarlet	22—24

Women's Wear Clips

Serges—	
White	53—56
Blue	28—29
Black	27—28
Brown	30—32
Green	30—31
Light	25—26
Tan	32—33

Old Woolen Rags

Merinos—	
Coarse light	7 — 8
Fine light	21 —22
Coarse dark	3 — 3½
Fine dark	6 — 6½
Serges—	
Light	14 —15
Brown	15 —16
Blue	7 — 7½
Black	6 — 6½
Red	14 —15
Green	11 —12
Knit—	
White	35 —36
Black	14 —15
Red	24 —25
Brown	19 —20
Light	23 —24

Skirted Cloths

Skirted Worsteds—	
Light	7 — 7½
Black	6½— 7
Blue	5½— 6
Dark	4 — 4½

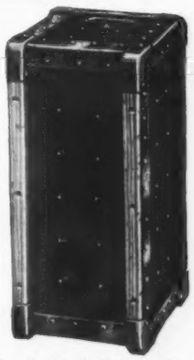
DOBBINS
SOAP MFG.
COMPANY
PHILADELPHIA

For Over Half a Century Makers of High Grade Soaps and Scouring Materials for Textile Manufacturers

HARD FIBRE MILL RECEPTACLES

"NO WASTE" Seamless ROVING CANS

Elliptical Square and Oval Cans



Steel Clad Filling Box
Note Steel Clad Bottom

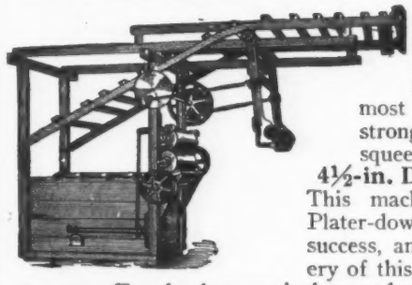
PLAIN FIBRE and STEEL CLAD
CARS—BOXES
BARRELS
BASKETS

COMBINATION DOFFING TRUCKS

TRAYS
GILL BOXES

STANDARD FIBRE CO., Somerville, Mass.

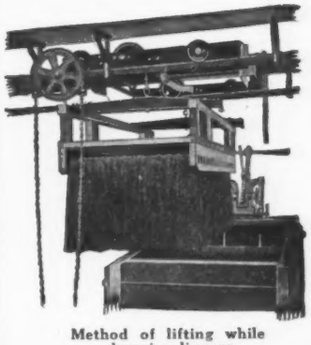
THE RELIANCE WARP DYEING MACHINE



Special attention is called to this improved **Warp Dyeing Machine.** This machine is built in the most substantial manner, being strongly geared with good, heavy squeeze rolls, and having **Seven 4½-in. Diameter Brass Rolls.** This machine, with our improved Plater-down has met with marvelous success, and parties desiring machinery of this class can make no mistake on ours. For further particulars and prices, address

RELIANCE MACHINE WORKS
Hedge and Plum Streets Frankford, Phila

Dyeing Wool and Worsted Knitting Yarns



Method of lifting while changing liquors

Instead of drawing the skeins through the liquor, we circulate the liquor through the skeins. LOFTINESS AND FREEDOM FROM FELTING AND MATTING DISTINGUISH OUR DYEINGS. Our references will convince you.

We can effect a reduction of at least 50 per cent in labor and 65 per cent in steam cost.

Made in sizes to suit all needs. 50 lbs. to 800 lbs. per batch.

Patentees and Sole Manufacturers

HUSSONG DYEING MACHINE CO.
GROVEVILLE, NEW JERSEY

SAFETY FIRST

Floors and aisles which are kept clear are undoubtedly safer. But what about the floors themselves?

Are they as safe to the feet of active, busy workers as they can be made by the use of

Wyandotte Detergent?

This cleaner not only insures protection by maintaining floors free from grease and slipperiness but it also provides a floor that is clean, sanitary and easy to maintain in this condition.

Moreover Wyandotte Detergent works so easily and quickly and is so harmless to the hands of the user that it proves a most profitable investment.

Ask your supply man.

THE J. B. FORD COMPANY

Sole Mnfrs.

Wyandotte, Michigan

INDANTHRENE
THIO-INDIGO
HELINDON
HYDRON
ALGOL

and other vat dyes will be imported by us direct from the manufacturers.

A COMPLETE LINE OF

Acid, Basic, Chrome, Sulphur and Direct Colors, Intermediates, Cotton Finishes, Turkey Red Oils, Soluble and Leather Oils

MANUFACTURED BY

Central Dyestuff & Chemical Co.
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SPECIAL DYESTUFFS
FOR
ACETATE SILK

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Reg. U. S. Pat. Off.

H. A. METZ & CO. Inc.
One-Twenty-Two Hudson Street, New York City.
Boston Philadelphia Providence Chicago Charlotte San Francisco

DYESTUFFS AND CHEMICALS

Discuss Dye Standards

Need of Test Method Also Considered at Meeting

How to develop a method to simulate sunshine in its effects on fading fabrics is a problem which has just been put up to the United States Bureau of Standards by the textile and dye industries of the country. The appeal is based on the present delay of months in testing the fading qualities of dyes. To overcome this delay and to shorten the test period would mean huge sums to the two industries, the Bureau was told.

This request came about at the meeting Wednesday of last week, mentioned briefly in these columns, when representatives of manufacturers, chemists, colorists, and consumers of dyes met with Dr. George K. Burgess and chemical and textile experts of the Bureau to consider the development of three important steps: Standard methods of testing the strength of dyes; a complete classification of the nomenclature in connection with dyes; and methods of testing the fastness of dyes on fabrics.

It was brought out that in other countries, notably Germany, standard names have been developed to cover certain dyes, regardless of whether they are made by one or several companies. In this country no such plan applies, and there is a possibility of wide confusion, it was stated.

In connection with the request for means to shorten the test period, there was emphasized by the Bureau of Standards the need for the adoption of grades and grade names by which the actual extent of fading can be stated in terms which the entire industry will understand.

The meeting was the outgrowth of the desire of the Government to assist the textile and dye industries, a movement which was initiated by a direct request of the wool manufacturers.

The meeting was attended by: Harrison F. Wilmot of the Synthetic Organic Chemical Manufacturers Association; Donald S. Ashbrook of Joseph Bancroft & Sons Co., Wilmington, Del., representing the National Association of Finishers of Cotton Fabrics; S. W. Cramer, Jr., of the Cramerton Mills, representing the American Cotton Manufacturers Association; Walter M. Scott of Cheney Bros., for the American Association of Textile Chemists; Winthrop C. Durfee, Hugh Cristison, George A. Moran, Dr. Louis A. Olney of Lowell Textile School and W. E. Hadley of Clark Thread Co., Newark, all representing the American Association of Textile Chemists and Colorists; W. F. Edwards for the Silk Association; Walter Humphreys of the joint com-

(*Continued on page* 197)

Miscellaneous Chemicals			
Acetone	15	—	18
Alumina-Sulp. com.	1½	—	....
Iron Free	2½	—	....
Alum. Am'onia Lump	3½	—	3¾
Potash, Lump	3	—	4
Ammoniac, Sal. white gr.	6½	—	8
Bleach powder, per 100 lb. works, drums, carloads	1 90	—	2 15
Blue Stone	4½	—	5¼
Calcium Arsenate	12	—	13
Chlorine, Liquid, Cylinders	5½	—	7½
Tanks	4½	—	....
Copperas, ton	16 00	—	23 00
Cream of Tartar	21	—	22
Epsom Salts, Tech. 100 lb.	1 10	—	1 75
Formaldehyde Spot.	11	—	12
Glauber Salts, 100 lb	1 00	—	1 40
Glycerine (C. P.) bbls., dms., ext.	17	—	17½
Cans	18½	—	19
Yellow Crude	16	—	16½
Hydrosulphite Conc.	**24**	**—**	**26**
Lead—Brown acetate	14	—	14½
White (crystals)	15	—	15½
Lime, acetate, 100 lb.	3 00	—	....
Potassium — Bichromate	9½	—	9¾
Chlorate crystals	7½	—	9
Permangan., tech.	14	—	15
Sodium acetate	5	—	6
Bichromate	7½	—	8
Bisulphite, 35%	1½	—	....
Nitrite	8¼	—	8½
Phosphate (Commercial)	3½	—	4
Prussiate, yellow	10	—	10½
Sulphide, 60% fused	3	—	5
30% crystals	2½	—	2¾
Tartar, emetic, tech.	26	—	....
Tin—Crystals	35½	—	36
Bichloride, 50 deg.	14	—	14½
Oxide, lb.	55	—	57
Zinc Dust	8	—	9
Acids			
Acetic, 28% per 100 lb.	3 12	—	3 37
Citric crystals	48	—	49
Formic, 85%	14	—	....
Lactic, 22%	5½	—	6½
Muriatic, 18 deg. per 100 lb., in t'k cars	90	—	100
Nitric, 36@42 deg. per 100 lb.	4 50	—	6 00
Oxalic	11	—	11½
Sulphuric, 66 deg. per ton, in t'k cars	15 00	—	16 00
Tartaric	28	—	30
Alkalies			
Ammonia, aqua, 26 deg.	6¾	—	7
Borax, bbls.	5½	—	6½
Potash, carbonate, 80-85%	5½	—	6½
Caustic, 88-92%	7	—	8
Soda Ash, 58% light, Contract, 100 lb.	1 25	—	1 63
Spot, 100 lb. bags	2 00	—	2 20
Bicarbonate, per 100 lb.	2 00	—	2 25
Caustic, 76%, per 100 lb. spot	3 75	—	3 90
Contract, 100 lb.	3 10	—	3 16½
Sal. 100 lb.	1 15	—	1 25
Natural Dyes and Tannins			
Fustic: Crystals	20	—	24
Liquid, 51 deg.	10	—	12
Gambier, liquid	9½	—	10½
Hematine, crystals	14	—	20
Hypernic Ext—51 deg., red shade	9	—	10
Indigo—Madras	95	—	1 00
Logwood chips	2½	—	3½
Extract, liquid, 51 deg.	7	—	8
Crystals	14	—	16
Osage Orange, Extract, 51 degs.	7	—	7½
Osage Orange, Crys.	16	—	17
Quercitron, Extract, 51 degs.	6½	—	7½
Sumac, Ext. dom., ref., 51 degs.	6½	—	7
Extract, stainless	9	—	10
Tannic Acid, tech.	40	—	45
Dyestuffs Intermediates			
Alpha Naphthol, ref	65	—	90
Crude	60	—	80
Alpha Naph'ylamine	35	—	37
Aniline Oil	16	—	17½
Salt	23	—	25
Beta Napthol, sublimed	55	—	60
Technical	24	—	26
Dimethylaniline	36	—	38
Metaphenylene Diamine	90	—	95
Paranitraniline	70	—	72
Oils and Soaps			
Castor Oil, No. 3	15	—	16
Olive Oil, denatured, gal.	1 30	—	1 35
Foots	10	—	....
Red Oil, lb.	9	—	....
Stearic Acid, double pressed	12	—	....
Turkey Red Oil, 50%	9	—	10
Adhesive and Sizing Materials			
Albumin, blood domestic	50	—	60
Egg, technical	....	—	....
Dextrine—Potato	7½	—	8
Corn, carload lots, bags, 100 lb.	3 74	—	3 79
Do., bbls., 100 lb.	4 01	—	4 06
Gum, British, carload lots, bags, 100 lb.	4 09	—	....
Do., bbls., 100 lb.	4 36	—	....
Sago, flour	3½	—	4
Starch, corn, bags, carload 100 lb.	3 17	—	3 27
Do., bbls.	3 44	—	3 54
Corn, thin boiling, bags, 100 lb.	3 92	—	4 02
Do., bbls.	4 19	—	4 29
Potato	4½	—	5½
Rice	9	—	12
Wheat	6	—	7
Tapioca flour	5½	—	6
Coal Tar Dyes			
Direct Colors—			
Black (H-acid)	32	—	35
Black Columbia FF	60	—	65
Blue, 2 B	28	—	35
Blue, sky ordinary	80	—	90
Blue, 1 GL	2 00	—	2 50
Blue, 4 GL	2 25	—	2 50
Blue, sky, FF	1 15	—	2 20
Blue, Fast RL	1 90	—	....
Blue Solamine	2 00	—	....
Benzo Azurine	80	—	90
Brown, C	40	—	70
Brown M	70	—	90
Brown, Congo G	90	—	....
Brown, Congo R	85	—	....
Green B	90	—	1 10
Green G	90	—	1 10
Orange, Congo	60	—	....
Orange, Fast S	1 85	—	....
Red, Fast F	90	—	1 10
Red, Congo	45	—	70
Red, Benzo, Purpurine 4 B	40	—	75
Red, Benzo, Purpurine 10 B	1 40	—	2 00
Scarlet, 4 BA	1 50	—	....
Scarlet, 4 BS	2 10	—	....
Scarlet, 8 BS	2 15	—	....
Scarlet, Diamine B	1 65	—	....
Violet N	1 10	—	1 25
Yellow, Chrysophenine	70	—	2 10
Yellow, Stilbene	90	—	1 00
Developing Colors—			
Black, B H	60	—	90
Black, Zambesi	3 50	—	....
Orange, developed	2 50	—	....
Primuline	1 00	—	1 15
Scarlet, Dev.	2 50	—	....
Sulphur Colors—			
Black	18	—	28
Blue cadet	80	—	95
Blue, navy	50	—	60
Brown	20	—	60
Green	85	—	1 25
Green, olive	25	—	60
Yellow	45	—	1 80
Basic Colors—			
Auramine	1 50	—	2 50
Bismarck Brown	60	—	75
Chrysoidine	55	—	65
Fuschine crystals	1 90	—	2 00
Malachite green	1 80	—	....
Methylene blue	1 25	—	1 40
Methyl violet	1 15	—	1 25
Rhodamine B, exconc	6 00	—	....
Rhodamine 6 G	12 00	—	18 00
Safranine	1 60	—	2 00
Victoria Blue B	2 00	—	3 00
Acid Colors—			
Naphthol blue blk.	40	—	70
Naphthlamine black 4 B	60	—	75
Alizarine saphirol	3 25	—	4 00
Alkali blue	3 50	—	4 50
Indigotine	75	—	1 80
Induline (water soluble)	75	—	85
Soluble Blue	2 75	—	3 50
Sulphocyanine	70	—	95
Sulphon Blue R	60	—	95
Patent Blue A	2 85	—	....
Resorcin brown	80	—	90
Guinea green	1 00	—	2 20
Wool green S	70	—	2 10
Orange II	29	—	33
Orange GG crys.	60	—	....
Acid fuchsine	75	—	....
Azo eosine G	65	—	82
Crocein scarlet	1 10	—	1 35
Fast red A	55	—	65
Azo yellow	1 10	—	1 40
Fast Light Yellow 2 G	2 00	—	....
Fast Light Yellow 3 G	2 50	—	....
Naphthol, yellow	1 35	—	1 40
Indigo—			
Synthetic, 20% paste	23	—	....
Contracts	21½	—	....

Downward Trend in Chemicals and Dyes

Acetate of Lime 50c. Per Lb. Lower—Dyes Show Declines During Last Month

One of the most important recent changes in quotations in the market for industrial chemicals has been the reduction of 50c. per hundred pounds in acetate of lime. This decline followed a similar reduction which went into effect a few weeks ago. The price is now $3.00 per hundred pounds. This naturally had its effect on acetic acid, which is 25c. lower per hundred pounds, bringing the 28% material to $3.12 to $3.27.

There were other price changes, all in a downward direction, but the above was the most important. The other changes were largely fractional. This general downward trend of the market is a result of the continued dullness which has featured trading. There seems to be little improvement in volume of spot business. A satisfactory condition, however, continues in the alkalies.

Revision in Dyes

Dyes have likewise been moving along routine lines and although price changes do not come abruptly as in the chemical field, the tendency has been downward and most quotations are lower than a month ago. In the direct colors, the H-acid Black is quoted at 32 to 35c. as against a previous range of 35 to 40c., while the Columbia Black FF is as low as 60 to 65c. Blue 2B has also felt the depression, ranging now from 28 to 35c. against a previous range of 30 to 45c. The skyblue, ordinary ranges from 80 to 90c. per lb. Congo Orange is quoted in the neighborhood of 60c. as against a previous average figure of 80c. The Fast Orange S is 10c. lower, being priced now at about $1.85. In the reds, the Benzo Purpurine 4B ranges from 40 to 75c. as against a previous stretch of 45 to 90c. The Scarlet 4BS is also lower, being priced at $2.10, while the Diamine Scarlet B is quoted at $1.65. Other changes in direct colors include a decline in the outside price of Violet N, which now ranges from $1.10 to $1.25, and a softening in the outside price of Chrysophenine yellow, now quoted at 90c. to $1.00.

Dye and Chemical Notes

Pontachrome Black PV has just been placed on the market by E. I. DuPont de Nemours & Co. The announcement states: "This represents a very popular brand of dyestuff for the woolen and worsted trade, especially desirable because of its extreme fastness to potting. As a self shade its fastness properties to scour-

SOLVAY

SOLVAY

STANDARD IN
SODA
SINCE 1881

SOLVAY products are sold on the basis of *actual* Alkali content.

SOLVAY 58% Soda Ash *contains* 58% of *actual* sodium oxide.

SOLVAY 76% caustic soda *contains* 76% of *actual* sodium oxide.

Specify SOLVAY—the standard in SODA since 1881.

The Solvay Process Company

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New York

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PEERLESS
DYES OF SPECIAL MERIT

DIRECT FAST COTTON COLORS
DEVELOPED DYES

PEERLESS COLOR CO., Inc., Plainfield, N. J.

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TALLOW CHIP No. 2 and No. 3 Chip SOAP
POTASH FIG SOAPS
for Woolens and Worsteds made with
Red Oil Olive Oil
Amber Oil
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TEXTILE SOAPS
MADE IN PAWTUCKET, R.I.
J.O. DRAPER CO.

Palm Oil
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Chips or Bars
Soap Powder
For Mill Floors

Established 1860. Incorporated 1905

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S. R. DAVID & COMPANY
INCORPORATED

Dyestuffs

252 Congress Street Boston, Mass.

Einstein has quite possibly upset the accepted theories of matter but the conscientious expert service back of WARREN SOAP is more firmly established than ever.

Warren Soap Manufacturing Company
77 Summer Street, Boston, Mass.
Established 1870 Incorporated 1890

Everything for Textile Printers
And for Bleachers, Dyers and Finishers
Engraving Machinery and Supplies
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NO CHEMIC
YET A GREAT IMPROVEMENT
OVER PREVIOUS RESULTS."

Report of large Eastern Mill after investigation.

You know the importance of these changes for the better! They increase the sales value of your goods. And you may have them too by adjusting your Kier Boil formula to include

SOL-ESCO

An alkaline detergent, incorporating the remarkable properties of minerals in the colloidal state.

SEND FOR PARTICULARS NOW
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Water softeners for throwsters, scourers, bleachers, dyers and finishers

LIME & SODA Softeners
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Clean, Pure, Sparkling Water
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FLORENCE, MASS.

FILTERS

Dyes and Chemicals—Continued

ing, light and milling, makes it highly commendable. For vigoreaux printing it is also adaptable, and will not gelatinize in concentrations used for this work."

The DuPont Company Inc. has also prepared a highly concentrated type of Sulfur Blue marketed as Sulfogene Direct Blue BRS, described as follows: "Because of its solubility, it is very adaptable for machine dyeing, yielding a very full shade of navy blue. It does not require oxidation before washing, making it especially adaptable for use in circulating machines, as well as piece goods dyeing."

Another color developed by this company is DuPont Phosphine G Conc., being similar to the DuPont Phosphine G, which has been on the market for some considerable time, but three times the concentration of the single strength. The company states: "This type is especially adaptable for the printing trade where the higher concentrations are very desirable."

The Department of Commerce announces the March production, shipments and stocks of acetate of lime, based on reports received from manufacturers, as follows:

Year and Month	Acetate of Lime (in lbs.) Production	Shipments (or use)	Stocks, end of month
1923			
Jan. ..	15,720,839	16,261,472	14,142,952
Feb. ..	13,469,524	13,635,149	14,498,522
Mar. ..	14,959,573	16,490,330	12,901,779
Apr. ..	13,698,154	14,869,803	11,892,803
May ..	14,822,716	17,937,601	9,007,287
June ..	14,439,164	13,995,065	9,755,803
July ..	13,179,716	13,145,388	9,767,173
Aug. ..	12,960,416	7,723,885	14,623,749
Sept. ..	11,674,842	8,227,072	18,034,111
Oct. ..	12,972,591	12,628,153	18,548,830
Nov. ..	14,684,883	14,033,761	19,249,055
Dec. ..	11,813,706	12,144,119	18,799,752
1924			
Jan. ..	13,420,193	9,022,250	23,401,511
Feb. ..	13,172,610	8,548,032	27,622,967
Mar. ..	14,107,411	9,027,539	32,370,329

Honor F. P. Garvan

Guest of Honor at Banquet Tendered by Chemists

Francis P. Garvan's service to the chemical industry was emphasized by speakers at a testimonial banquet tendered him Saturday of last week at the Waldorf-Astoria Hotel, New York. Several hundred chemists and others identified with the domestic industry were present. Mr. Garvan was formerly alien property custodian and is now president of the Chemical Foundation, Inc.

Speakers included Dr. Leo H. Backeland, president of the American Chemical Society; Elon H. Hooker, president of the Manufacturing Chemists' Association, and Brigadier-General Amos A. Fries, chief of the Chemical Warfare Service. The toastmaster was Dr. Edgar F. Smith, former president of the American Chemical Society.

After numerous laudatory remarks had been made by the speakers regarding Mr. Garvan's service in the development of chemical knowledge and progress in this country, the guest of honor replied briefly, urging the chemists to keep the American people informed as to their ideals and purposes. He stated that while $50,000,000 had been appropriated for laboratories in educational institutions and industrial plants during the last five years, $100,000,000 more should be expended in the same manner in the next ten years.

"Today we are commercially independent, and in 20 years we would lead the world," said Mr. Garvan. "The world will look up to American chemists not only for scientific leadership but for idealistic leadership as well."

The dinner was under the auspices of the American Chemical Society,

Francis P. Garvan,
Honored by Chemists at Banquet

American Electro-chemical Society, American Association of Textile Chemists and Colorists, American Institute of Chemical Engineers, Chemists' Club, Manufacturing Chemists' Association, Synthetic Organic Chemical Manufacturers' Association, and Salesmen's Association of the American Chemical Industry.

Discuss Dye Standards

(*Continued from page* 195)

mittee on standards and research of the National Association of Wool Manufacturers; R. Norris Shreve and William J. Hale, Dye Division, American Chemical Society; T. W. Delahanty, Chemical Division, Bureau of Foreign and Domestic Commerce, and the following from the Bureau of Standards: K. S. Gibson, F. R. McGowan, P. H. Bates, C. C. Hubbard, E. M. Schenke, H. T. Wensel, C. N. Schoffstall and W. D. Appell.

Poor Mill Year in China

WASHINGTON, D. C.—The annual statements of the Chinese cotton mills for 1923 are beginning to appear and indicate that the past year was an extremely trying one. There does not seem to be any immediate alleviation of conditions on account of the continued discrepancy existing between the prices of cotton and yarn, according to Assistant Commercial Attaché Arthur H. Evans, Peking.

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Combining the latest European and American methods.

We believe there is no problem in
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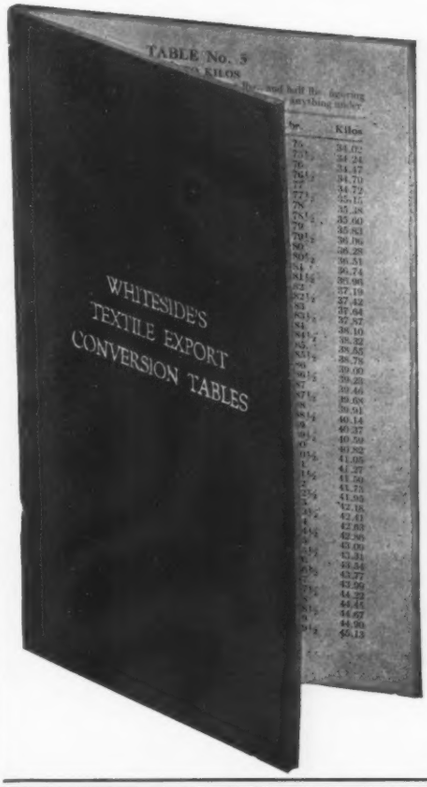
that we cannot solve.

Formulas for the best method of obtaining any DESIRED FINISH on any fabric cheerfully given.

WHITESIDE'S TEXTILE EXPORT CONVERSION TABLES



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Superior to all other tables because all "in between" calculations are given. Some of the tables are:
Inches and half inches to centimetres and reverse.
Yards to metres by ¼ yard graduations.
Pounds to kilos by ½ lb. graduations.
Grammes per sq. metre and lineal metre.
Kilos per 1000 yards and yards per kilo.
Threads per 5 millimetre sq. and 6 millimetre sq. for all cloth constructions.
Calculations include cloths from 2 yds. per lb. to 11 yds. per lb. and from 18 ins. wide to 60 ins. by half inch graduations.

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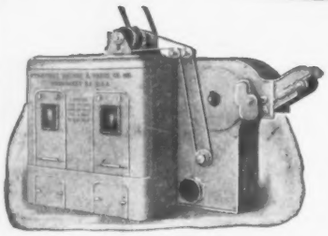
Cotton Machinery
Built by Specialists



Woonsocket Machine & Press Co., Inc.

Woonsocket, Rhode Island, U. S. A.

Picker and Card Room Machinery

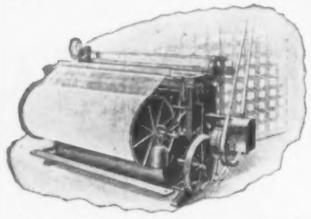
Feeders — Conveyers
Vertical Openers — Bale Breakers
Breaker Pickers — Finisher Pickers
Thread Extractors
Roving Waste Openers
Revolving Top Flat Cards
Drawing Frames, Slubbers
Intermediate, Roving and Jack Frames

Fales & Jenks Machine Company

Pawtucket, Rhode Island, U. S. A.

Ring Spinning and Twisting Machinery

Ring Spinning Frames for Cotton, Ring Twisters for Cotton, Wool, Worsted, Silk, Jute, Flax and Novelty Yarn.



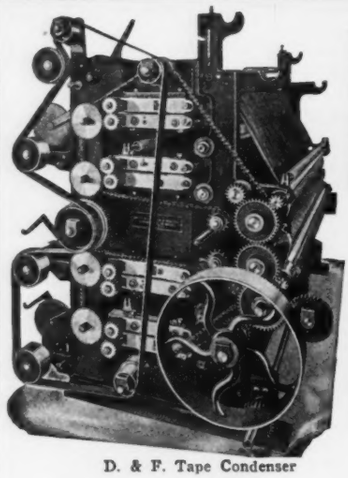
Easton & Burnham Machine Company

Pawtucket, Rhode Island, U. S. A.

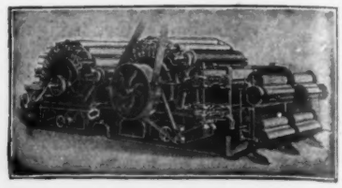
Warping and Winding Machinery

Spoolers — Doublers
Beam Warpers — Banding Machines
Ball Warpers — Card Grinders
Skein Winders — Spindles for Cotton and Silk
Reels

J. H. Windle, Northern and Export Agent — Pawtucket, R. I.
J. H. Mayes, Southern Agent — Charlotte, N. C.



D. & F. Tape Condenser



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360 Spindle Mule

DAVIS & FURBER MACHINE CO.
NORTH ANDOVER, MASS.

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CARDING MACHINES FOR WOOLEN, WORSTED, MOHAIR, ASBESTOS, COTTON WASTE, FLAX WASTE, JUTE WASTE, SILK WASTE, AND SHODDY
GARNETT BREASTS
TAPE CONDENSERS
DOUBLE AND TRIPLE APRON RUBBS
NAPPERS FOR COTTON, WOOLEN, AND KNIT GOODS
FEARNAUGHT PICKERS
SPINNING MULES FOR ANY STOCK WHICH CAN BE SPUN ON THE WOOLEN PRINCIPLE
FULL LINE OF WOOL PICKERS, DUSTERS, TWISTERS, BOBBIN WINDERS, DRESSERS, REELS, BEAMERS, SPOOLERS, ETC.
WELL MADE WOOLEN AND WORSTED MACHINERY

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FOR MORE THAN FIFTY YEARS

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TRAVELLER CLEANERS
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WHITINSVILLE SPINNING RING CO.
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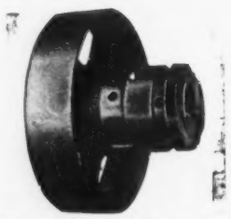
THE JOHNSON FRICTION CLUTCH.

"Just Answers the Purpose" On Paper Tag Making Machine



Single Clutch with Pulley

So says the machine builder, and he ought to know.

The D. & D. Machine and Tool Co., Inc., Elizabeth, N. J. has just brought out its new safety Paper Tag Making Machine, Johnson clutch-equipped. The firm writes.

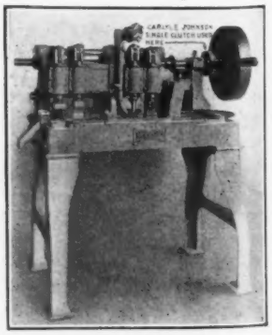
"The Johnson Clutch just answers the purpose, as it stops the machine instantly when required, and no counter shaft is needed."

For Any Machine!

During the past twenty-four years the Johnson Clutch has been applied to thousands of paper-making machines, textile machines, and machine tools. There is a Johnson Clutch for practically every machine built for light power.

Let us give you our detailed data on improving your machines, abolishing counter-shafts, and reducing costs. Slow speed clutches carried in stock for prompt shipment.

Write for Violet Catalog.



COURTESY:
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Elizabeth, N. J.

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

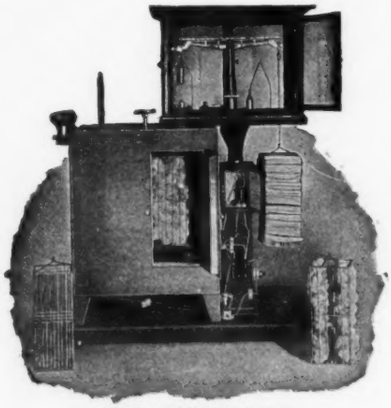
Emerson Conditioning Ovens

Do you test your textile materials for moisture? The use of one of our Conditioning Ovens for this purpose will place your mill on a more efficient basis. *Neglect to account for moisture results in losses.*

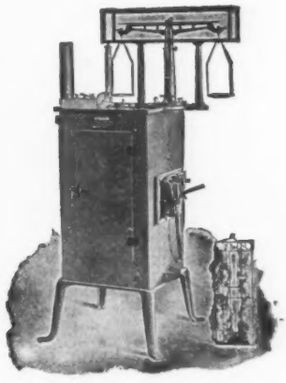
There are three sizes of Emerson Conditioning Ovens, the Four Basket and the Single Basket Ovens being equipped with large baskets for bulky material and the Eight Basket Oven with small baskets.

The Emerson Conditioning Ovens are all electrically heated and can be fitted to operate on either A. C. or D. C. circuits. Write

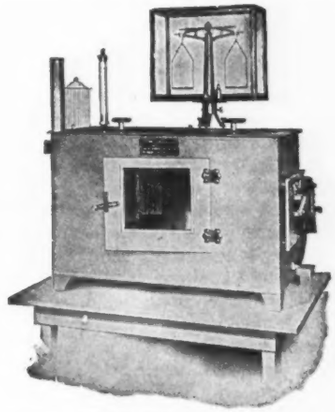
Emerson Apparatus Co., 171 Tremont St., Melrose, Mass.



FOUR BASKET OVEN
(Baskets, 7 in. x 7 in. x 18 in. deep)



SINGLE BASKET OVEN
(Baskets, 7 in. x 7 in. x 18 in. deep)



EIGHT BASKET OVEN
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SAMUEL BROWN

This originally appeared serially in TEXTILE WORLD and has been republished in book form at the urgent request of many readers.

Starting with a brief history of the industry, it takes up in detail the machinery used, operation of machinery, and particularly the construction of and methods of producing many plain and fancy types of narrow woven fabrics.

There is also a chapter on the manufacture of Narrow Knitted Fabrics written by William Davis and a special chapter on Weaving the Van Heusen Collar.

Over 70 illustrations of machinery, products and drafts for fabrics increase the value of the book as a practical guide for those engaged in the business.

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OBITUARY

Col. Robert P. Perkins

Col. Robert P. Perkins, president of the Bigelow-Hartford Carpet Co., died Monday at his residence, 290 Park Avenue, New York, after an illness lasting over a year. Mr. Perkins was a graduate of Harvard, class of 1884. He captained the varsity crew in his senior year and was always fond of athletics. He was president of the Harvard Club from 1919 to 1922.

Upon his graduation Mr. Perkins entered the wool business in Philadelphia as a salesman and continued his connection with the wool trade until he became secretary of the E. S. Higgins Carpet Co. in 1892. He was elected vice president of the company upon the resignation of J. B. Fitzgerald. The Hartford Carpet Co. took over the organization of the Higgins company and when Eugene H. Higgins retired in 1901 Mr. Perkins became president of the Hartford Co.

Under his management the Hartford company became one of the leaders in the industry. Not satisfied with this position in the field, Mr. Perkins engineered the consolidation of the Bigelow Carpet Co. and the Hartford operating under the present title of the Bigelow-Hartford Carpet Co., of which Mr. Perkins became president upon its organization in 1914.

The rank of colonel was conferred upon Mr. Perkins for his work during the World War in connection with the United States Red Cross. He was commissioner to Italy for the organization and devoted his entire time to this work in Italy.

Mr. Perkins was unmarried. He had few outside industrial interests. He was a director in the National Park Bank of this city and was a member of a number of clubs, including the Harvard, Racquet and Tennis, Union, New York, Piping Rock, National Golf, Links Golf and Garden City Golf. His country home was at Centreport, L. I. He is survived by his three sisters. Funeral services were held Thursday morning in Trinity Chapel, 25th St. west of Broadway. Interment was at Glen Cove, L. I.

Arthur B. Silsbee

Arthur B. Silsbee, prominent in the New England cotton industry, died at his home in Boston. He had been treasurer of the Ipswich Mills and of the Gilmanton Mills, of Belmont, N. H., and of the Cocheco Mfg. Co., at Dover, N. H. Formerly he was president of the Salmon Falls Mfg. Co., in which company and the Ipswich Mills he still retained a position as director. He was 70 years old.

Joseph B. Lister

Joseph B. Lister, a director of the Centerdale Worsted Mills and superintendent of the Stillwater mill of that company, died at a hospital in Providence, R. I., at the age of 69 years.

He was born in England in 1855 and came to this country when 10 years old. He joined his brother, James Lister, in the worsted industry in 1899, and the company now operate three mills, one at Olneyville, another at Allendale, and the third at Stillwater. In addition to his sons, who are executives of the business, he is survived by his wife and by two daughters, both of whom are married.

Gen. Julian S. Carr

General Julian S. Carr, of Durham, N. C., the founder of the Durham Hosiery Mills, and still a member of the board, died Tuesday night in Chicago as the result of an attack of influenza. General Carr was born at Chapel Hill, S. C. in 1845. He was a graduate of the University of North Carolina and served with distinction in the Army of the Confederacy. He was engaged in many other business enterprises beside the manufacture of hosiery. At the time of his death he was president of the Bull Durham Tobacco Co., the First National Bank of Durham, Ormond Mining Co., Durham & Charlotte Railroad and a director of the State University, as well as of the Durham Hosiery Mills. He was president of the Southern Memorial Association, Richmond, Va. and of the North Carolina Children's Home Society. At the National Democratic Convention in 1900 he received 13 votes for vice-president. He had been a delegate at large at these conventions eight times.

Business News

Appointed Manager of Woonsocket Machine and Press Co.

Fay H. Martin has been appointed manager of the Woonsocket (R. I.) Machine & Press Co., Inc. He succeeds John Montgomery who has resigned to enter another line of business.

Mr. Martin has been associated with the company up to this time in the sales department. He brings to his new position a wealth of information and experience concerning textile machinery, having devoted practically his whole life to the manufacture and sale of the same. He gained his early training at the Lowell Machine Shops and was master mechanic at the Boott Mills for seven years. He joined the Woonsocket Machine & Press Co. in 1917 and has been with the present company since its organization.

Bristol Co. Repair Plant

The Bristol Co., Waterbury, Conn., manufacturer of recording instruments and distributor of radio equipment, has leased 2,740 sq. ft. in the Larkin Building, 3617 South Ashland Avenue, Chicago, in order adequately to take care of the Middle West business. Most of this area will be devoted to repairing and recalibrating Bristol instruments sold and used in the Chicago territory, but some will be used for stocking made-up instruments for quick deliveries. The present salesroom and offices of the Bristol Co. will be maintained in the Monadnock Building.

Tillinghast Purchases Wm. Smith & Sons Business

The Tillinghast Supply & Machine Co., Inc., Salem, Mass., has purchased the good will, patents and business of William Smith & Sons, Lawrence, Mass. The Smith line of machines will be manufactured hereafter at 76 Lafayette St., Salem, Mass., where improved facilities will make it possible to give the trade improved service.

M. Ward Easby, Inc., Moves

M. Ward Easby, Inc., constructing engineers, have removed their offices from 1814 Chestnut street to the Schaff Building, 1505 Race street, Philadelphia.

Burke Electric Co., Chicago Office

The Burke Electric Co., manufacturing direct and alternating current machinery, has established one of its branch sales offices in Chicago at 310 South Michigan Avenue, in charge of Miles E. Standish.

New England Manager of McClave-Brooks Co.

T. Amory Coffin, formerly chief Field Engineer for the Phoenixville plant of the Heine Boiler Company, has been appointed manager of the New England office of McClave-Brooks Company and will be located at their Boston office, 200 Devonshire St.

Alterations at Philadelphia Plant

Crompton & Knowles Loom Works are making alterations in their Philadelphia plant, located at Rosehill Street and Allegheny Avenue, which will increase their facilities for serving the trade in this vicinity.

Investment Firm Change

John D. Wing, for many years connected with the firm of Wing and Evans, Inc., has become as of May 1, 1924, a general partner of the firm of Russell, Miller & Carey, 52 Broadway, New York City, members of the New York Stock Exchange.

Mr. Wing resigned from Wing & Evans in 1921 after the firm was taken over by the Allied Chemical & Dye Corp. Wing & Evans was founded by his grandfather and for many years was closely identified with Brunner Mond and Co. of Northwich, Eng., and the Solvay Process Co. of Syracuse. Mr. Wing was a director and export manager at the time of his resignation. Russell, Miller & Carey conduct a general investment business in stocks and bonds.

Active Cotton Spindles

WASHINGTON, D. C.—The Department of Commerce announces that according to preliminary figures 37,761,970 cotton spinning spindles were in place in the United States on March 31, 1924, of which 32,392,171 were operated at some time during the month. Number of cotton spinning spindles in place, the number active, the number of active spindle hours and the average spindle hours per spindle in place, by States, are shown in the following statement:

	Spinning spindles (in thousands)		Active spindle hours for March	
	In place Mar. 31	Active during Mar.	Total	Average per spindle in place
United States	37,761	32,392	7,072,965,368	187
Cotton growing	16,926	16,184	4,315,892,680	255
New England	18,812	14,514	2,434,290,416	129
All other	2,022	1,692	322,782,272	160
Ala.	1,376	1,293	332,745,771	242
Conn.	1,284	1,202	240,785,982	187
Ga.	2,730	2,601	716,646,391	262
Me.	1,146	1,086	190,277,204	166
Mass.	11,954	8,693	1,435,133,460	120
N. H.	1,448	981	163,473,450	113
N. J.	446	430	84,716,667	190
N. Y.	1,033	855	156,448,674	151
N. C.	5,741	5,458	1,468,769,273	256
Penn.	209	152	28,383,452	135
R. I.	2,832	2,447	385,267,307	136
S. C.	5,185	5,076	1,413,060,257	273
Tenn.	459	447	115,672,732	252
Va.	691	672	111,031,183	161
All other	1,218	992	230,553,565	189

Bids on Textiles for Navy

WASHINGTON, D. C. The Navy Department received the following bids to supply 7,200 yards of 40-inch parachute silk: Duplan Silk Corporation, New York City, $2.49 per yard; Schwarzenbach Huber & Co., New York City, $2.10; and Stehli Silk Corporation, New York City, $2.50. Bids were opened April 29 by the Bureau of Supplies & Accounts.

Activity of Wool Machinery

WASHINGTON, D. C., Apr. 20.—The Department of Commerce announces the following statistics on active and idle wool machinery for March, 1924, based on reports received from 913 manufacturers, operating 1,092 mills. The figures follow:

Month	Looms: Wider than 50-in. reed space	Looms: 50-in. reed space or less	Carpet and rug	Sets of cards	Combs	Spinning spindles: Woolen	Worsted
March, 1924, total	61,490	17,152	9,403	6,985	2,694	2,295,982	2,645,392
In operation	44,351	13,646	7,736	5,971	2,205	1,938,355	2,083,055
Idle	17,139	3,506	1,667	1,014	489	357,627	562,337
Feb., 1924, total	62,700	17,460	9,332	6,991	2,696	2,287,891	2,618,055
In operation	44,738	14,098	7,740	5,889	2,138	1,885,523	2,030,358
Idle	17,962	3,362	1,592	1,102	558	402,368	587,697
March, 1923, total	60,566	17,117	9,105	6,952	2,592	2,285,742	2,453,989
In operation	52,298	14,731	7,882	6,302	2,315	2,057,527	2,298,957
Idle	8,268	2,386	1,223	650	217	228,215	155,032

PER CENT OF TOTAL NUMBER OF MACHINES

	Looms: Wider than 50-in. reed space		Looms: 50-in. reed space or less		Carpet and rug		Sets of cards		Combs		Spinning spindles: Woolen		Worsted	
	Active	Idle	Active	Idle	Active	Idle	Active	Idle	Active	Idle	Active	Idle	Active	Idle
February, 1924	72.1	27.9	79.6	20.4	82.3	17.7	85.5	14.5	81.8	18.2	84.4	15.6	78.0	22.0
March, 1923	71.4	28.6	80.7	19.3	82.9	17.1	84.2	15.8	80.2	19.8	82.4	17.6	77.6	22.4
March, 1924	86.3	13.7	86.1	13.9	86.6	13.4	90.7	9.3	91.4	8.6	90.0	10.0	93.7	6.3

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TWO AUCTIONS

of utmost importance to you

PHILADELPHIA-MAY 13
BOSTON- - - - - -MAY 22

Again the War Department is offering you an opportunity to obtain a wide variety of high grade merchandise. Large quantities of textiles and wearing apparel are to be offered at these two auctions which you must make it a point to attend. Look over the digest given below of the more important offerings, and then send to the Quartermaster Supply Officer, 1st Ave. & 59th Street, Brooklyn, N. Y., for complete catalogues of either or both of these sales.

Philadelphia, May 13. 156,629 yds. Sateen, warp, grey, 54-55 inches; 22,642 yds. Sateen, white, 32"; 1,347,102 yds. Tape, ¾", grey; 72,560 yds. Tape, 1¼", O. D.; 605,673 yds. Duck, grey and O. D., 9½ to 14¾ oz., 125,000 yds. webbing, cotton, O. D. 1¼" and 1½"; 13,473 mufflers, wool, O. D.; 127,753 toques, wool, O. D.; 70,000 coats, wool, O. D.; 163,466 prs. breeches, cotton, O. D.; 144,654 coats, cotton, O. D.; 5,293 overcoats, wool, O. D.; 47,948 prs. sheepskin moccasins; large quantities of thread, various colors and sizes; millions of ivory buttons. Sale will be held at Quartermaster Intermediate Depot, 21st & Oregon Avenue.

Boston, May 22. 1,474,067 yds. Melton O. D.; 20 oz.; 61,000 yds. of sateen, grey and O. D.; 1,450,000 yds. webbing, O. D.; ½" to 7"; 60,000 yds. of twill, grey; 35,000 yds. cloth, cotton twill, O. D. and grey; 460,000 yds. Duck, O. D.; and grey, 11½ to 16 oz.; 400,000 prs. Breeches, cotton, O. D.; 107, 202 coats, cotton, O. D.; 33,000 prs. trousers, wool, O. D.; 12,830 coats, wool, O. D.; 15,000 overcoats, O. D.; 13,500 hats, denim, and large quantities of leggin laces; O. D. sheeting, cotton braid, rubber boots. Sale will be held at Army Supply Base, South Boston, Mass.

The Government reserves **the right to reject** any and all bids.

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Commission House Up-To-Date

(*Continued from page 84*)

(in the upper half). A card is made out for each construction handled, and the cards are indexed by mills, construction and type of fabric.

Still another interesting form used is the loom layout sheet illustrated in Fig. 3. This sheet tells accurately and quickly the exact status, theoretical and actual, of each mill. On the reverse side of the sheet is printed a diagram of each weave room, each loom being given a number and each section a letter. The commission house knows exactly what each loom in each mill is running on; it may be stated in passing that in this house looms are actually laid out in New York.

How to Get Even Samples

Many other examples of careful attention to accuracy in detail might be cited here, but space does not permit. Nothing better illustrates the insistence upon such perfection as is humanly possible, however, than the method of preparing samples. Sample pieces are kept in large envelopes, free from dirt and dust, until they are wanted. In making up samples a procedure is followed which results in smooth, even samples, all exactly the same size.

A standard size, 12 x 18 in., has been adopted for all samples. Both narrow and wide fold samples are reduced to this size by folding, the narrow fold size being folded once and the wide fold twice. Miniature head-ends are made up 12 x 4½ in., four of them coming to the standard 12 x 18 in. size.

The samples are prepared by pressing under weights in specially designed boxes of various sizes. These boxes, open at the top and front, are made of wood; they are mortised and brass-bound to give additional strength. Thin samples are folded around brass sheets as they go into the box, and the whole is topped off by heavy brass weights. On the bottom of each miniature head-end is printed the name of the house, name of the mill, width, count, weight, style and date when made.

Specially designed wardrobe trunks, built by Crouch & Fitzgerald, are furnished road salesmen. One-half of these trunks is the wardrobe section; the other half contains five drawers, two on top for the personal use of the salesman, the three lower drawers being used for extra samples. A space in between these two sets of drawers is taken up by two specially designed salesmen's grips, each built to accommodate exactly the standard size samples.

Harding, Tilton & Co. are not alone among commission houses in exhibiting a striking example of efficiency in routine and office detail, but they are certainly well to the front among those who are willing and anxious to apply modern methods to their business problems.